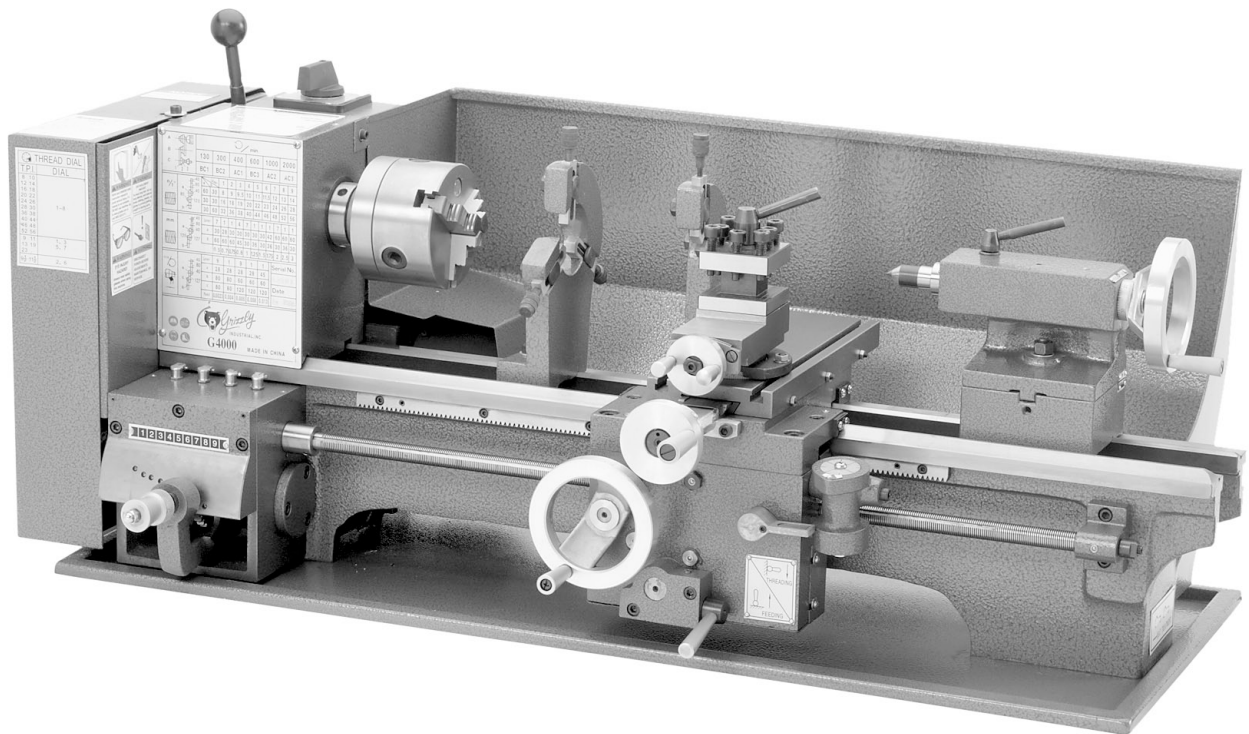


# ***Grizzly*** **Industrial, Inc.**®

## **MODEL G4000 9" X 19" BENCH LATHE OWNER'S MANUAL**



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(FOR MODELS MANUFACTURED SINCE 3/09) #TS11444 PRINTED IN CHINA



# MACHINE DATA SHEET

Customer Service #: (570) 546-9663 · To Order Call: (800) 523-4777 · Fax #: (800) 438-5901

## MODEL G4000 9" X 19" BENCH LATHE

### Product Dimensions:

Weight..... 250 lbs.  
Length/Width/Height..... 37 x 20 x 15 in.  
Foot Print (Length/Width)..... 37 x 16 in.

### Shipping Dimensions:

Type..... Wood Crate  
Content..... Machine  
Weight..... 293 lbs.  
Length/Width/Height..... 41 x 22 x 20 in.

### Electrical:

Switch..... Forward/Reverse  
Switch Voltage..... 110V  
Cord Length..... 6 ft.  
Cord Gauge..... 12 gauge  
Minimum Circuit Size..... 15 amp  
Plug Included..... Yes

### Motors:

#### Main

Type..... Open Frame Capacitor Start Induction  
Horsepower..... 3/4 HP  
Voltage..... 110V  
Prewired..... 110V  
Phase..... Single  
Amps..... 11.6A  
Speed..... 1725 RPM  
Cycle..... 60 Hz  
Number Of Speeds..... 1  
Power Transfer ..... Belt Drive to Gear  
Bearings..... Shielded and Lubricated for Life

### Main Specifications:

#### Operation Info

Swing Over Bed..... 8-3/4 in.  
Dist Between Centers..... 19 in.  
Swing Over Cross Slide..... 5 in.  
Swing Over Saddle..... 5 in.  
Swing Over Gap..... 9 in.  
Max Tool Bit Size..... 1/2 in.  
Compound Travel..... 1-7/8 in.  
Carriage Travel..... 16 in.  
Cross Slide Travel..... 4-1/4 in.

## Headstock Info

Spindle Bore.....	3/4 in.
Spindle Size.....	39 mm
Spindle Taper.....	MT#3
Spindle Threads.....	4
No Of Spindle Speeds.....	6
Range Of Spindle Speeds.....	130, 300, 400, 600, 1000, 2000 RPM
Spindle Type.....	Threaded
Spindle Bearings.....	Tapered Roller

## Tailstock Info

Tailstock Travel.....	1-9/16 in.
Tailstock Taper.....	MT#2
Tailstock Barrel Diameter.....	1.002 in.

## Threading Info

No Of Inch Threads.....	27
Range Of Inch Threads.....	8 - 56 TPI
Range Of Longitudinal Feeds.....	0.0023 - 0.013 in.
No Of Longitudinal Feeds.....	18
No Of Metric Threads.....	11
Range Of Metric Threads.....	0.5 - 3.0 mm

## Dimensions

Bed Width.....	4-1/2 in.
Leadscrew TPI.....	16
Leadscrew Length.....	25 in.
Steady Rest Capacity.....	1-3/4 in.
Follow Rest Capacity.....	1-3/4 in.
Faceplate Size.....	7-1/2 in.
Leadscrew Diameter.....	9/16 in.
Floor To Center Height.....	41 in.

## Construction

Base Construction.....	Cast Iron
Headstock Construction.....	Cast Iron
Headstock Gears Construction.....	Cast Iron
Bed Construction.....	Hardened Cast Iron
Body Construction.....	Cast Iron
Paint.....	Epoxy

## Other

Kilowatt Output.....	0.5595
Optional Stand.....	G4001

## Other Specifications:

Country Of Origin .....	China
Warranty .....	1 Year
Serial Number Location .....	Bed Back, Right End

## Features:

Chip and Splash Guard Included  
Hardened and Ground Cast Iron Bed  
Quick Change Gearbox Offers up to 27 Standard and 11 Metric Threads, from 8 to 56 Threads Per Inch  
Threading Dial

**Accessories Included:**

- 4 Way Tool Post
- 4" 3-Jaw Chuck with Two Sets of Jaws
- 7-1/4" 4-Jaw Chuck with Reversible Jaws
- Extra C-Type Tool Post
- Face Plate
- Follow Rest
- MT#2 Dead Center
- MT#2 Live Center
- MT#3 Dead Center
- Steady Rest
- Tool Box
- Tool Kit





## **WARNING!**

**This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.**

**Failure to read, understand and follow the instructions given in this manual may result in serious personal injury, including amputation, electrocution or death.**

**The owner of this machine/equipment is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, blade/cutter integrity, and the usage of personal protective equipment.**

**The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.**



## **WARNING!**

**Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:**

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

**Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.**

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# INTRODUCTION

## Manual Accuracy

We are proud to offer this manual with your new machine! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the machine we used when writing this manual. However, sometimes errors do happen and we apologize for them.

Also, owing to our policy of continuous improvement, **your machine may not exactly match the manual**. If you find this to be the case, and the difference between the manual and machine leaves you in doubt, check our website for the latest manual update or call technical support for help.

Before calling, find the manufacture date of your machine by looking at the date stamped into the machine ID label (see below). This will help us determine if the manual version you received matches the manufacture date of your machine.

		MODEL GXXXX MACHINE NAME	
SPECIFICATIONS		⚠ WARNING!	
Motor:		<b>Manufacture Date of Your Machine</b> 4. make sure the motor has stopped and disconnect power before adjustments, maintenance, or service. 5. DO NOT expose to rain or dampness. 6. DO NOT modify this machine in any way. 7. DO NOT remove safety guards. 8. Never leave machine running unattended. 9. DO NOT operate under the influence of drugs or alcohol. 10. Maintain machine carefully to prevent accidents.	
Specification:			
Specification:			
Specification:			
Weight:			
	Date	ing this machine: operation. s and respirator. sted/setup and suit before starting.	
	Serial Number		
Manufactured for Grizzly in Taiwan			

For your convenience, we post all available manuals and manual updates for free on our website at [www.grizzly.com](http://www.grizzly.com). Any updates to your model of machine will be reflected in these documents as soon as they are complete.

## Contact Info

We stand behind our machines. If you have any service questions, parts requests or general questions about the machine, please call or write us at the location listed below.

Grizzly Industrial, Inc.  
1203 Lycoming Mall Circle  
Muncy, PA 17756  
Phone: (570) 546-9663  
Fax: (800) 438-5901  
E-Mail: [techsupport@grizzly.com](mailto:techsupport@grizzly.com)

If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.  
c/o Technical Documentation Manager  
P.O. Box 2069  
Bellingham, WA 98227-2069  
Email: [manuals@grizzly.com](mailto:manuals@grizzly.com)

## Machine Description

The metal lathe is used to remove material from a rotating workpiece, which is held in place on the spindle with a chuck or faceplate. The cutting tool is mounted on the carriage or tailstock and moved against the spinning workpiece to perform the cut.

The typical metal lathe cutting operations include facing, turning, parting, drilling, reaming, grooving, knurling, and threading. There are a wide variety of tools and workpiece holding devices available for each of these operations.



---



**Note:** For detailed descriptions of basic controls and components, refer to **Basic Controls** beginning on **Page 17**.

**If you have never used this type of machine or equipment before, WE STRONGLY RECOMMEND that you read books, review industry trade magazines, or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.**



# MACHINE DATA SHEET

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## MODEL G4000 9" X 19" BENCH LATHE

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Foot Print (Length/Width)..... 37 x 16 in.

### Shipping Dimensions:

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Content..... Machine  
Weight..... 293 lbs.  
Length/Width/Height..... 41 x 22 x 20 in.

### Electrical:

Switch..... Forward/Reverse  
Switch Voltage..... 110V  
Cord Length..... 6 ft.  
Cord Gauge..... 12 gauge  
Minimum Circuit Size..... 15 amp  
Plug Included..... Yes

### Motors:

#### Main

Type..... Open Frame Capacitor Start Induction  
Horsepower..... 3/4 HP  
Voltage..... 110V  
Prewired..... 110V  
Phase..... Single  
Amps..... 11.6A  
Speed..... 1725 RPM  
Cycle..... 60 Hz  
Number Of Speeds..... 1  
Power Transfer ..... Belt Drive to Gear  
Bearings..... Shielded and Lubricated for Life

### Main Specifications:

#### Operation Info

Swing Over Bed..... 8-3/4 in.  
Dist Between Centers..... 19 in.  
Swing Over Cross Slide..... 5 in.  
Swing Over Saddle..... 5 in.  
Swing Over Gap..... 9 in.  
Max Tool Bit Size..... 1/2 in.  
Compound Travel..... 1-7/8 in.  
Carriage Travel..... 16 in.  
Cross Slide Travel..... 4-1/4 in.



**Headstock Info**

Spindle Bore.....3/4 in.  
Spindle Size..... 39 mm  
Spindle Taper.....MT#3  
Spindle Threads..... 4  
No Of Spindle Speeds.....6  
Range Of Spindle Speeds.....130, 300, 400, 600, 1000, 2000 RPM  
Spindle Type..... Threaded  
Spindle Bearings..... Tapered Roller

**Tailstock Info**

Tailstock Travel..... 1-9/16 in.  
Tailstock Taper..... MT#2  
Tailstock Barrel Diameter..... 1.002 in.

**Threading Info**

No Of Inch Threads.....27  
Range Of Inch Threads..... 8 - 56 TPI  
Range Of Longitudinal Feeds..... 0.0023 - 0.013 in.  
No Of Longitudinal Feeds..... 18  
No Of Metric Threads.....11  
Range Of Metric Threads.....0.5 - 3.0 mm

**Dimensions**

Bed Width.....4-1/2 in.  
Leadscrew TPI..... 16  
Leadscrew Length..... 25 in.  
Steady Rest Capacity.....1-3/4 in.  
Follow Rest Capacity..... 1-3/4 in.  
Faceplate Size..... 7-1/2 in.  
Leadscrew Diameter..... 9/16 in.  
Floor To Center Height..... 41 in.

**Construction**

Base Construction..... Cast Iron  
Headstock Construction..... Cast Iron  
Headstock Gears Construction.....Cast Iron  
Bed Construction..... Hardened Cast Iron  
Body Construction..... Cast Iron  
Paint..... Epoxy

**Other**

Kilowatt Output.....0.5595  
Optional Stand.....G4001

**Other Specifications:**

Country Of Origin ..... China  
Warranty ..... 1 Year  
Serial Number Location ..... Bed Back, Right End

**Features:**

Chip and Splash Guard Included  
Hardened and Ground Cast Iron Bed  
Quick Change Gearbox Offers up to 27 Standard and 11 Metric Threads, from 8 to 56 Threads Per Inch  
Threading Dial



# SECTION 1: SAFETY

## WARNING

### For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.



Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

### **NOTICE**

This symbol is used to alert the user to useful information about proper operation of the machine.

## WARNING

### Safety Instructions for Machinery

- 1. READ ENTIRE MANUAL BEFORE STARTING.** Operating machine before reading the manual greatly increases the risk of injury.
- 2. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
- 3. ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Most types of dust (wood, metal, etc.) can cause severe respiratory illnesses.
- 4. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
- 5. WEAR PROPER APPAREL. DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
- 6. NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.







## **Safety Instructions for Machinery**

- 7. ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
- 8. KEEP CHILDREN/VISITORS AWAY.** Keep all children and visitors away from machinery. When machine is not in use, disconnect it from power, lock it out, or disable the switch to make it difficult for unauthorized people to start the machine.
- 9. UNATTENDED OPERATION.** Leaving machine unattended while its running greatly increases the risk of an accident or property damage. Turn machine **OFF** and allow all moving parts to come to a complete stop before walking away.
- 10. DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
- 11. KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.
- 12. USE A GROUNDED POWER SUPPLY RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Operating machine on an incorrect size of circuit increases risk of fire.
- 13. ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
- 14. MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 15. MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
- 16. REMOVE CHUCK KEYS OR ADJUSTING TOOLS.** Make a habit of never leaving chuck keys or other adjustment tools in/on the machine—especially near spindles!
- 17. DAMAGED MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, other conditions that may impair machine operation. Always repair or replace damaged parts before operation.
- 18. DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
- 19. SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
- 20. DO NOT OVERREACH.** Maintain stability and balance at all times when operating machine.
- 21. MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
- 22. STABLE MACHINE.** Machines that move during operations greatly increase the risk of injury and loss of control. Verify machines are stable/secure and mobile bases (if used) are locked before starting.
- 23. CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.
- 24. EXPERIENCING DIFFICULTIES.** If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Contact our Technical Support Department at (570) 546-9663.





## **WARNING**

# Additional Safety Instructions for Metal Lathes

1. **COVERS & DOORS:** Unexpected contact with the internal moving parts or electrical devices could cause serious personal injury. ALWAYS keep the covers and doors closed and secured when the machine is connected to power.
2. **CLEANING MACHINE:** To avoid lacerations, do not clear chips by hand. Use a brush and a shop vacuum, and never clear chips while the lathe is operating.
3. **PREVENTING A CRASH:** Make sure no part of the tool, tool holder, compound slide, cross slide, or carriage will contact the chuck during operation. To avoid unexpected carriage movement, ALWAYS disengage the feed and half-nut levers after completing an operation.
4. **CHUCK KEY:** A chuck key left in the chuck can become a dangerous projectile when the lathe is started. ALWAYS remove the chuck key after each use.
5. **SECURE WORKPIECE:** A workpiece thrown from the lathe could cause severe injury. Make sure the workpiece is properly held in the chuck or faceplate before starting the lathe.
6. **ENTANGLEMENT INJURIES:** Never attempt to slow or stop the workpiece or spindle by hand or with a tool. Tie back long hair, loose clothing, and button up long sleeves to avoid entanglement injuries.
7. **CHUCK SAFETY:** Chucks are surprisingly heavy and awkward to hold. ALWAYS protect your hands and use a chuck cradle or piece of plywood to protect the bedways.
8. **CORRECT TOOLING:** The right tool decreases strain on the lathe components and reduces the risk of unsafe cutting. ALWAYS select the right cutter for the job, and make sure the cutters are sharp.
9. **STARTUP INJURIES:** Make sure the workpiece, cutting tool, and tool post have adequate clearance and are secure before starting the lathe. Large parts can be ejected from the chuck if the spindle speed is set too high. Make sure the spindle speed is set correctly for the operation before starting the lathe.
10. **UNATTENDED MACHINE:** Leaving the lathe unattended when it is **ON** greatly increases the risk of accidental injury or machine damage. Always turn the lathe **OFF** whenever leaving it unattended for ANY amount of time.
11. **WORKPIECE SUPPORT:** Support a long workpiece if it extends outboard from the headstock so it will not wobble violently when the lathe is turned **ON**. If the workpiece extends more than 2.5 times its diameter from the chuck, support it with a center or rest, or it may deflect and fall out of the chuck while cutting.
12. **AVOID OVERLOADS:** Always use the appropriate spindle speed and feed rate.
13. **CHANGING GEARS OR DIRECTION:** Changing gears or direction when the spindle is in motion could damage the lathe. ALWAYS stop the spindle and wait until it has come to a complete stop before changing gears or direction.

## **WARNING**

Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

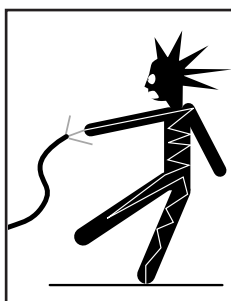


# SECTION 2: CIRCUIT REQUIREMENTS

## 110V Operation

### **!WARNING**

Serious personal injury could occur if you connect the machine to power before completing the setup process. **DO NOT** connect the machine to the power until instructed later in this manual.



### **!WARNING**

Electrocution or fire could result if machine is not grounded and installed in compliance with electrical codes. Compliance **MUST** be verified by a qualified electrician!

### Full Load Amperage Draw

This machine draws the following amps under maximum load:

Amp Draw.....11.6 Amps

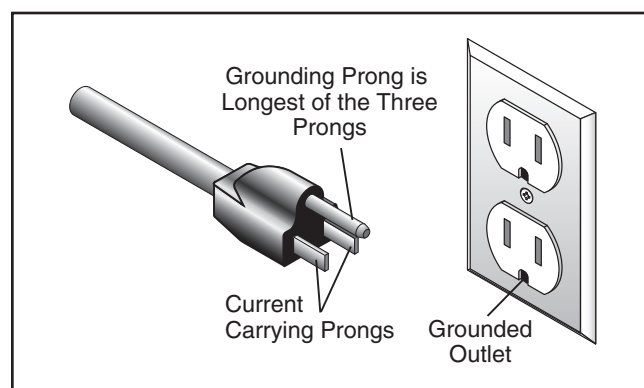
### Power Supply Circuit Requirements

The power supply circuit for your machine **MUST** be grounded and rated for the amperage given below. Never replace a circuit breaker on an existing circuit with one of higher amperage without consulting a qualified electrician to ensure compliance with wiring codes. **If you are unsure about the wiring codes in your area or you plan to connect your machine to a shared circuit, consult a qualified electrician.**

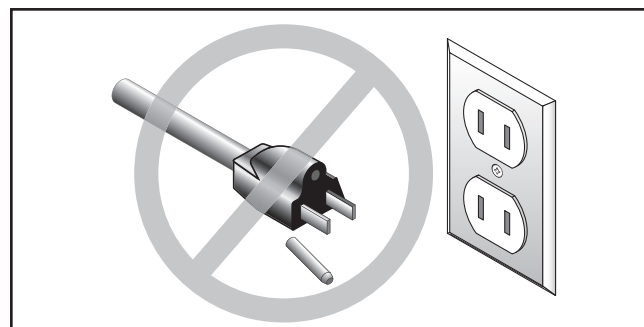
Minimum Circuit Size..... 15 Amps

### Power Connection Device

The Model G4000 comes with a 5-15 plug, similar to **Figure 2**, to connect the machine to power.



**Figure 2.** Typical 5-15 plug and receptacle.



### **!CAUTION**

This machine **MUST** have a ground prong in the plug to help ensure that it is grounded. **DO NOT** remove ground prong from plug to fit into a two-pronged outlet! If the plug will not fit the outlet, have the proper outlet installed by a qualified electrician.

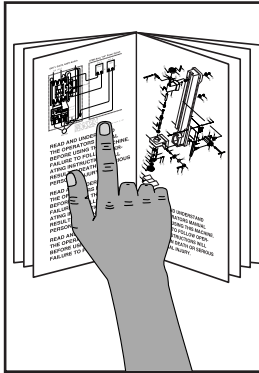
### Extension Cords

We do not recommend using extension cords, but if you find it absolutely necessary:

- Use at least a 14 gauge cord that does not exceed 50 feet in length!
- The extension cord must have a ground wire and plug pin.
- A qualified electrician **MUST** size cords over 50 feet long to prevent motor damage.

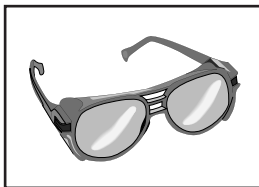


# SECTION 3: SETUP



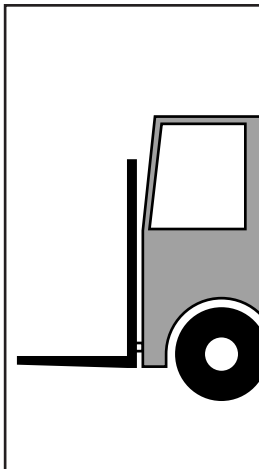
## **!WARNING**

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!



## **!WARNING**

Wear safety glasses during the entire setup process!



## **!WARNING**

The Model G4000 is a heavy machine. Serious personal injury may occur if safe moving methods are not used. To be safe, get assistance, use safe lifting methods, and use power equipment that is rated for at least 500 lbs. to move the shipping crate and machine.

## Needed for Setup

The following are needed to complete the setup process, but are not included with your machine:

Description	Qty
• Wrenches 13, 16mm.....	1 Each
• Precision Level .....	1
• Assistants .....	As Needed
• Safety Glasses .....	1 Per Person
• Lifting Straps .....	2
• Hoist or Forklift .....	1
• Shop Rags.....	As Needed
• Cleaning Solvent ( <b>Page 12</b> ) .....	As Needed
• Mounting Hardware ( <b>Page 14</b> ) ...	As Needed
• Tools for Mounting.....	As Needed

## Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover the machine is damaged, *please immediately call Customer Service at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.



# Inventory

The following is a description of the main components shipped with your machine. Lay the components out to inventory them.

**Note:** If you can't find an item on this list, check the mounting location on the machine or examine the packaging materials carefully. Occasionally we pre-install certain components for shipping purposes.

Inventory: (Figures 3–4)	Qty
A. Faceplate 7½" .....	1
B. 4-Jaw Chuck 7¼" .....	1
C. 3-Jaw Chuck 4" .....	1
D. Reverse Jaws for 3-Jaw Chuck.....	1 Set
E. C-Type Tool Holder.....	1
F. Dead Center MT#2 .....	1
G. Dead Center MT#3 .....	1
H. Live Center MT#2 .....	1
I. Change Gears:	
—30T Gears .....	2
—36T Gear .....	1
—42T Gear .....	1
—45T Gear .....	1
—80T Gears .....	2
J. Tool Box.....	1
K. Standard & Phillips Screwdrivers .....	1 Each
L. Combo Wrenches 8/10, 12/14mm .....	1 Each
M. Hex Wrenches 1.5, 2, 4, 5, 6mm.....	1 Each
N. Oil Bottle.....	1
O. Belt Tension Lever Knob .....	1
P. Chuck Bars.....	2
Q. 3-Jaw Chuck Key .....	1
R. 4-Jaw Chuck Key .....	1
S. Hardware (Not Shown):	
—Hex Bolts M10-1.5 x 30.....	2
—Hex Bolt M8-1.25 x 30 (C-Type Holder) ..	1
—Hex Nuts M8-1.25 (C-Type Holder) .....	1
—Pin 8 x 20mm (C-Type Holder) .....	1
—Phillips Head Screws M8-1.25 x 16 .....	4
—Hex Nuts M8-1.25 .....	3
—High Hex Nut M8-1.25 .....	1
—Flat Washers 8mm.....	9
—Compression Spring 10 x 40mm .....	1

If any nonproprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

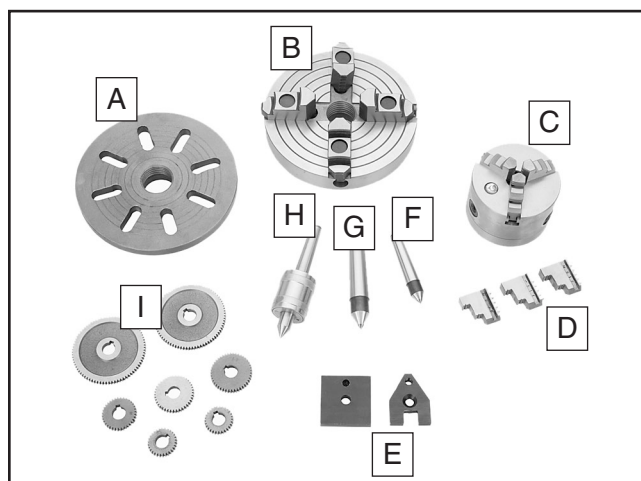


Figure 3. Model G4000 inventory 1.

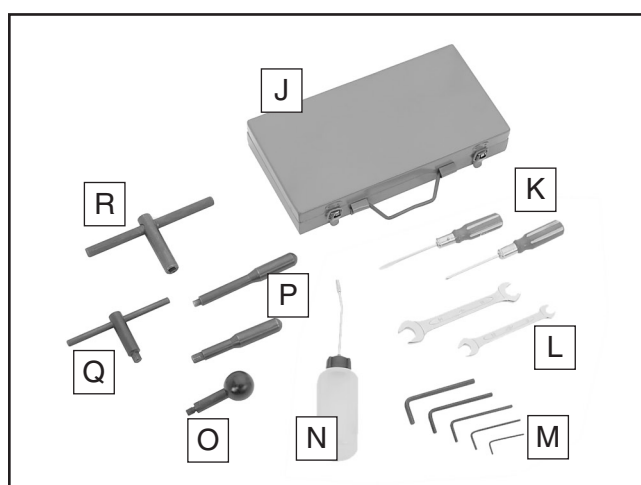
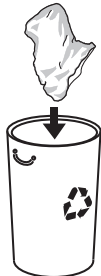


Figure 4. Model G4000 inventory 2.



**!WARNING**


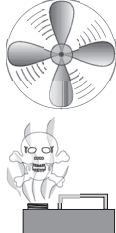
**SUFFOCATION HAZARD!**

Immediately discard all plastic bags and packing materials to eliminate choking/suffocation hazards for children and animals.



# Clean Up

The unpainted surfaces are coated with a waxy oil to prevent corrosion during shipment. Remove this protective coating with a solvent cleaner or degreaser, such as shown in **Figure 5**. For thorough cleaning, some parts must be removed. **For optimum performance, clean all moving parts or sliding contact surfaces.** Avoid chlorine-based solvents, such as acetone or brake parts cleaner that may damage painted surfaces. Always follow the manufacturer's instructions when using any type of cleaning product.

	<p><b>! WARNING</b></p> <p>Gasoline and petroleum products have low flash points and can explode or cause fire if used to clean machinery. <b>DO NOT</b> use these products to clean the machinery.</p>
	<p><b>! CAUTION</b></p> <p>Many cleaning solvents are toxic if inhaled. Minimize your risk by only using these products in a well ventilated area.</p>

**G2544—Solvent Cleaner & Degreaser**  
**H9692—Orange Power Degreaser**  
 Great products for removing shipping grease.

Call  
**1-800-523-4777**  
 To Order



**Figure 5.** Cleaner/degreasers available from Grizzly.

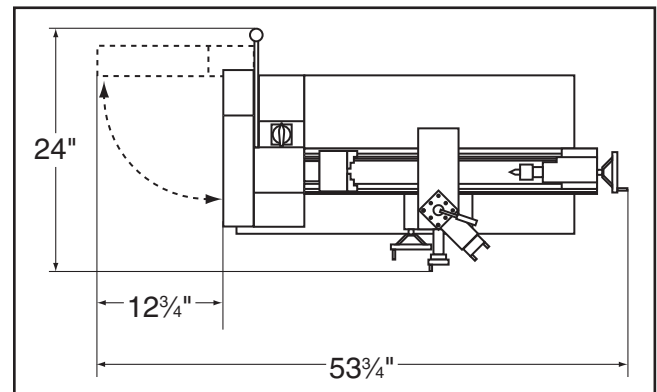
# Site Considerations

## Workbench Load

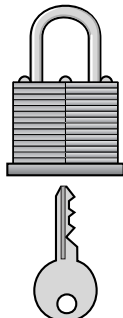
Refer to the **Machine Data Sheet** for the weight and footprint specifications of your machine. Some workbenches may require additional reinforcement to support both the machine and materials.

## Placement Location

Consider existing and anticipated needs, size of material to be processed through each machine, and space for auxiliary stands, work tables or other machinery when establishing a location for your new machine. See **Figure 6** for the minimum working clearances.



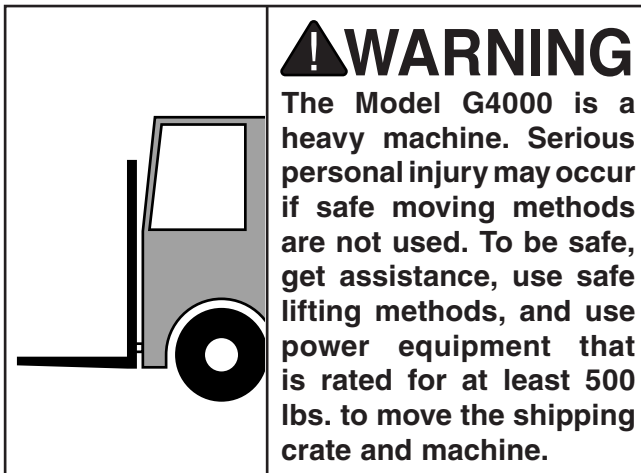
**Figure 6.** Minimum working clearances.

	<p><b>! CAUTION</b></p> <p>Children and visitors may be seriously injured if unsupervised around this machine. Lock entrances to the shop or disable start switch or power connection to prevent unsupervised use.</p>
--	--





# Moving & Placing Lathe



To ensure the lathe does not unexpectedly move during operation, you must securely mount the machine to a flat and stable surface that can support the weight. To do this, use the chip pan as a template to drill the holes (refer to **Mounting** on **Page 14**).

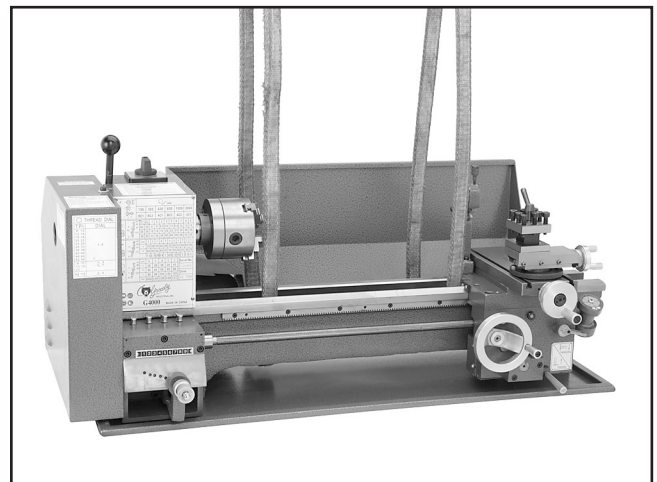
## To move and place your lathe:

1. Remove the crate top, then remove the chip pan that is attached to it.
2. Remove the sides of the crate, the toolbox, and the faceplate/4-jaw chuck assembly from the shipping pallet, then unbolt the lathe from the pallet.
3. Position the chip pan on the prepared surface, use it as a template to mark the mounting hole locations, then drill the holes.

4. Wrap the lifting straps around the back of the bedway and up through the center cavities to avoid bending the leadscrew or contacting the carriage controls when lifting, as shown in **Figure 7**.

**Note:** To help balance the load, remove the tailstock and steady rest from the machine, then position the right lifting strap and the carriage as far to the right as possible (refer **Carriage Controls** on **Page 18** for detailed instructions).

*Make sure the lifting straps do not put any strain on the leadscrew or carriage controls.*



**Figure 7.** Lifting straps properly positioned.

5. Attach the lifting straps to the power lifting equipment, have an assistant steady the load, then lift it just enough to clear any obstacles and move it to its mounting position.
6. Properly mount the lathe as instructed in the **Mounting** subsection on **Page 14**.



# Mounting

The chip pan and the base of the lathe have holes that allow the machine to be mounted to a workbench. You **MUST** mount your machine to a workbench to prevent it from unexpectedly moving during operation, which could lead to personal injury or property damage.

**Follow these guidelines when mounting your lathe to ensure safe and accurate cutting results:**

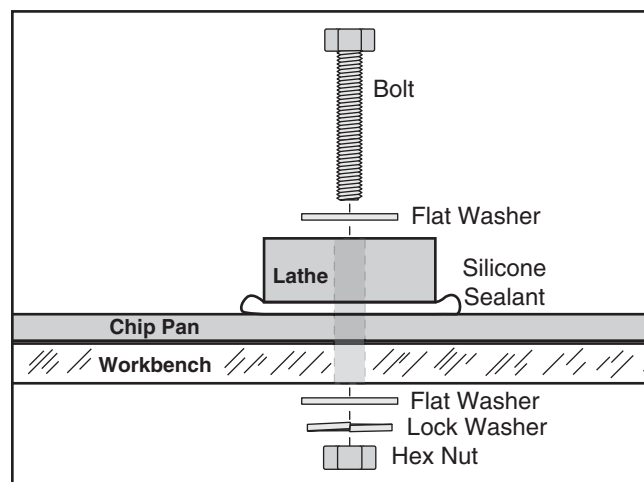
- Make sure that the workbench can adequately support the weight of the machine and materials and that it will not move or vibrate during operation.
- Use ½" bolts, which is the largest diameter fastener that the holes in the lathe and chip pan will accommodate. When using hex nuts, apply thread-locking fluid to ensure they do not come loose.
- Use a quality silicone sealant between the lathe and the chip pan to prevent coolant and other fluids leaking through onto the workbench or floor.
- To ensure accurate results from your lathe, use a precision level to make the lathe bedway exactly level from side-to-side and front-to-back. If necessary, use shims between the lathe and chip pan.

**Note:** *Re-check the bedway after 24 hours, after two weeks, then annually to make sure it remains level.*

## ⚠ WARNING

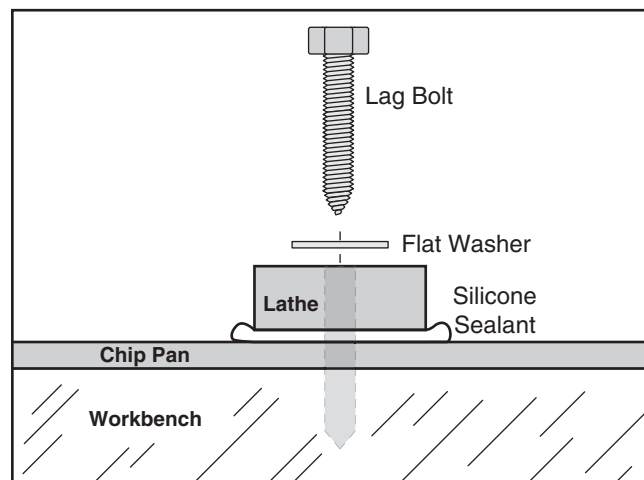
Unexpected movement of the lathe during operation could draw the operator's hands or body into the moving parts of the machine. Make sure this machine is properly secured to a stable workbench or stand before connecting it to power.

The strongest of the two mounting methods illustrated in this section is the "Through Mount" method. In this method, holes are drilled all the way through the workbench, and hex bolts, washers, and hex nuts are used to secure the lathe and chip pan to the workbench, as illustrated in **Figure 8**.



**Figure 8.** Example of a through mount setup.

Another option for mounting is a "Direct Mount" where the machine is simply secured to the workbench with a lag screw, as illustrated in **Figure 9**.

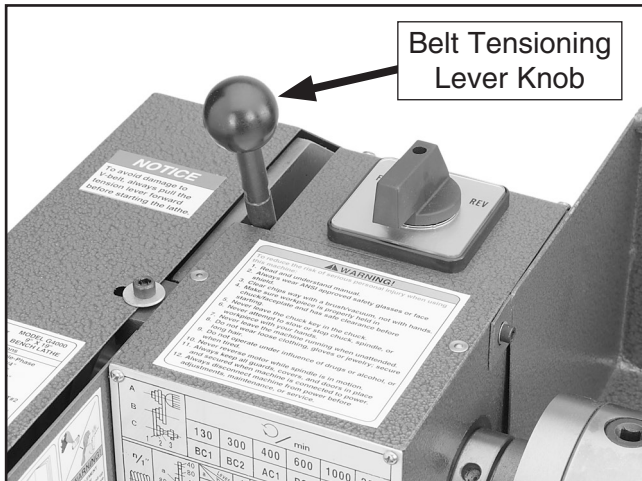


**Figure 9.** Example of a direct mount setup.



# Belt Tensioning Lever Knob

Thread the knob onto the belt tensioning lever, as shown in **Figure 10**.



**Figure 10.** Belt tensioning lever knob.

## Test Run

Test run your machine to make sure it runs properly.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review the **Troubleshooting** on **Page 49**.

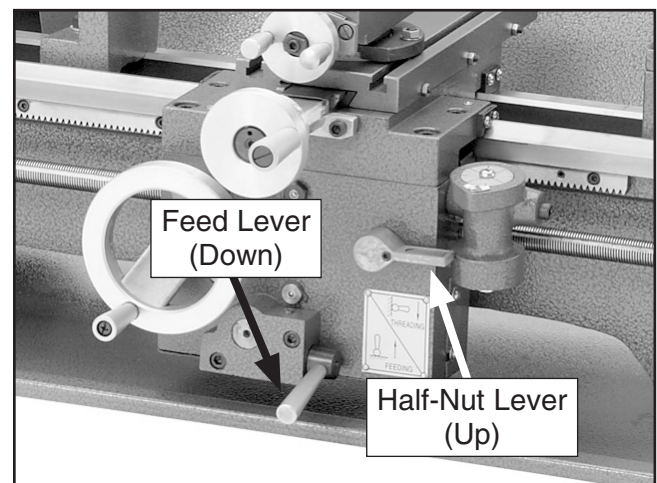
If you still cannot remedy a problem, contact our Tech Support at (570) 546-9663 for assistance.

### To test run the machine:

1. Make sure you have read the safety instructions at the beginning of the manual and that the machine is set up properly.
2. Your lathe must be fully lubricated before you start it for the first time. Perform all lubrication procedures as instructed in the **Lubrication** subsection on **Page 46**.
3. Make sure all tools and objects used during setup are cleared away from the machine.

4. If a chuck is mounted, make sure it is firmly secured to the spindle and that it can rotate without any interference (refer to **Chuck/Faceplate Mounting & Removal** on **Page 19** for detailed instructions).
5. Make sure the feed lever on the front of the carriage is in the disengaged (down) position and the half-nut lever is in the disengaged (up) position, as shown in **Figure 11**.

**Note:** With the feed and half-nut levers in these positions, the carriage will not move when the lathe is turned **ON** and the leadscrew rotates.



**Figure 11.** The feed and half-nut levers in the disengaged positions.

6. Make sure the spindle switch on the top of the headstock is in the STOP position, then connect the machine to power.
7. Turn the spindle switch to the FWD position, then listen to and watch for abnormal noises or actions. The machine should run smoothly with little or no vibration or rubbing noises.

—Strange or unusual noises should be investigated and corrected before operating the machine further. Always disconnect the machine from power when investigating or correcting potential problems.





8. Make sure the chuck or spindle is rotating in a counterclockwise direction (the top of the chuck or spindle should be moving toward the operator).

—If the chuck or spindle is not rotating in a counterclockwise direction, move the spindle switch to the STOP position, disconnect the machine from power, then check the motor and spindle switch wiring (refer to the **Wiring Diagram** on **Page 55**). If you still cannot remedy the problem, contact our Tech Support at (570) 546-9663 for assistance.

9. Turn the lathe **OFF** by moving the spindle switch to the STOP position.

5. Turn the spindle switch to the STOP position and wait for the spindle to come to a complete stop, then turn the switch to the REV position and let the lathe run for another 10 minutes.

6. Turn the spindle switch to the STOP position and wait for the spindle to come to a complete stop.

7. Disconnect the lathe from power, then repeat **Steps 4–6** for the spindle speeds of 600 RPM and 2000 RPM.

8. Turn the lathe **OFF**. The **Spindle Bearing Break-In** procedure is complete and your lathe is ready for operation.

## Spindle Bearing Break-In

### **NOTICE**

Successfully complete all of the spindle bearing break-in steps to avoid rapid deterioration of the spindle bearings and other related parts.

#### To perform the spindle bearing break-in:

1. DISCONNECT LATHE FROM POWER!
2. Make sure that you have successfully completed all of the **Test Run** steps in the previous procedure.
3. Configure the spindle belt for 120 RPM (refer to **Spindle Speed** on **Page 31** for detailed instructions).
4. Connect the lathe to power, turn the spindle switch to the FWD position, then let the lathe run for 10 minutes.

## Recommended Adjustments

For your convenience, the adjustments listed below have been performed at the factory.

However, because of the many variables involved with shipping, we recommend that you at least verify the following adjustments to ensure the best possible results from your new machine.

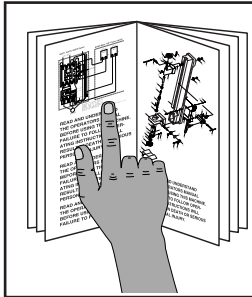
Step-by-step instructions for these adjustments can be found in the **SERVICE** section starting on **Page 49**.

#### Factory adjustments that should be verified:

- Tailstock alignment (**Page 26**).
- Gib adjustment (**Page 51**).



# SECTION 4: OPERATIONS

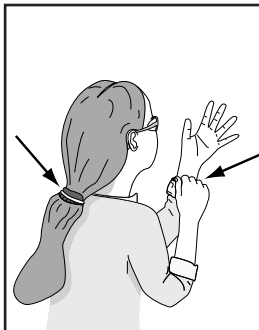
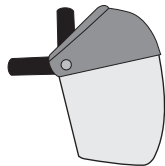


## !WARNING

To reduce the risk of serious injury when using this machine, read and understand this entire manual before beginning any operations.

## !WARNING

Damage to your eyes and face could result from using this machine without proper protective gear. Always wear safety glasses or a face shield when operating this machine.



## !WARNING

Loose hair, clothing, or jewelry could get caught in machinery and cause serious personal injury. Keep these items away from moving parts at all times to reduce this risk.

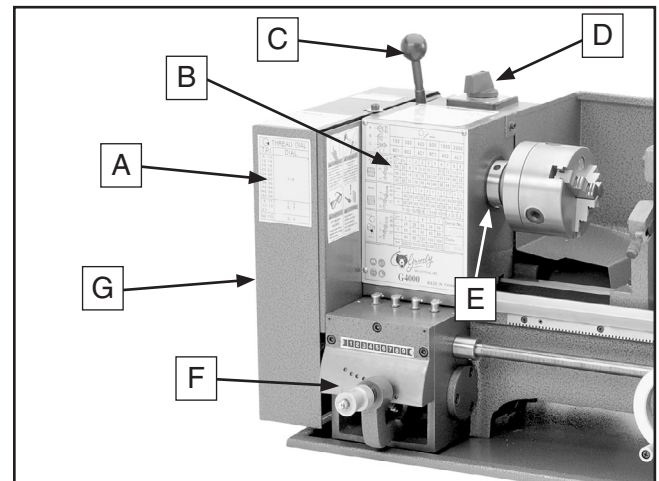
## NOTICE

If you have never used this type of machine or equipment before, WE STRONGLY RECOMMEND that you read books, review industry trade magazines, or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

## Basic Controls

Refer to **Figures 12–14** and the following descriptions to become familiar with the basic controls and components of your lathe.

### Headstock

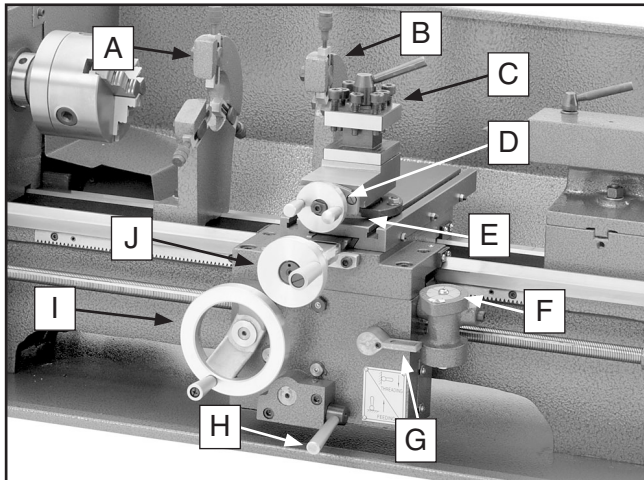


**Figure 12.** Headstock controls and components.

- A. Thread Dial Chart:** Shows when to engage the half-nut for inch threading.
- B. Configuration Chart:** Provides belt, gear, and lever positions for spindle speeds, power feed rates, and threading operations.
- C. Belt Tensioning Lever:** Releases or applies tension to the spindle belt.
- D. Spindle Switch:** Starts, reverses, and stops spindle rotation.
- E. Spindle:** Holds a chuck, faceplate or center for workpiece mounting.
- F. Feed Rate Lever:** Engages the gearing that partly control the carriage feed rate.
- G. Change Gear Cover:** Protects the operator from the change gears, belts, and pulleys that transfer power from the motor to the spindle and leadscrew.



## Carriage



**Figure 13.** Carriage controls and components.

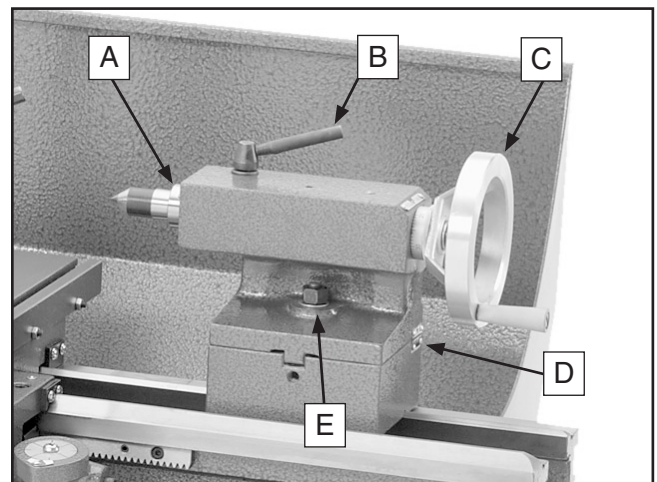
- A. Steady Rest:** Provides support for long, slender stock and can be positioned anywhere on the bedway.
- B. Follow Rest:** Follows the movement of the carriage and provides support for long, slender stock to prevent the workpiece from flexing due to cutting tool pressure.
- C. 4-Way Tool Post:** Holds four different cutting tools that can be indexed (rotated) to the workpiece as needed.
- D. Compound Slide Handwheel:** Moves the compound slide and mounted tooling toward or away from the workpiece at the angle selected.
- E. Compound Slide Angle Scale:** Displays the angle of the compound slide and mounted tooling in relation to the spindle center line.
- F. Thread Dial:** When engaged with the leadscrew, shows when to engage the half-nut during certain inch threading operations.
- G. Half-Nut Lever:** Opens and closes the half-nut onto the longitudinal leadscrew, which engages the powered carriage feed for threading.
- H. Feed Lever:** Engages the carriage gears with the longitudinal leadscrew for non-threading powered carriage movement.

## NOTICE

Engaging the feed lever and the half-nut at the same time will damage the carriage gearing and longitudinal leadscrew. **NEVER** attempt to force the feed lever in the engaged (up) position and half-nut lever in the engaged (down) position at the same time.

- I. Carriage Handwheel:** Moves the carriage and the mounted tooling left-or-right along the bedway.
- J. Cross Slide Handwheel:** Moves the cross slide and mounted tooling in-or-out to the bedway.

## Tailstock



**Figure 14.** Tailstock controls and components.

- A. Quill:** Holds a tapered center or tool, and moves toward or away from the spindle with the use of the handwheel.
- B. Quill Lock:** Locks the quill and installed tool in place.
- C. Quill Handwheel:** Moves the quill in and out of the tailstock casting.
- D. Offset Scale:** Indicates the tailstock offset from the lathe center line.
- E. Tailstock Lock Nut:** Secures the tailstock in place on the bedway.



# Chuck/Faceplate Mounting & Removal


Your Model G4000 lathe includes a 4" 3-jaw chuck, a 7" 4-jaw chuck, and a 7½" faceplate. The chucks and faceplate mount to the threaded spindle in the same manner.

Before installing or storing the chucks or faceplate, clean away debris and grime from their surfaces and threaded bores, then apply a protective coat of a product like Primrose Armor Plate to avoid rust and corrosion (see **ACCESSORIES** on **Page 42**).

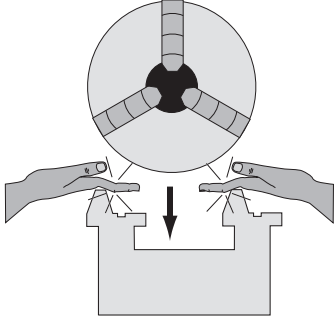
Tools Needed	Qty
Hex Wrench 3mm.....	1
Chuck Bars.....	2
Plywood ¾" (for bedway).....	1

## Mounting a Chuck or Faceplate

1. DISCONNECT LATHE FROM POWER!
2. Lay a piece of plywood on the bedway underneath the spindle to protect the precision ground surfaces.
3. Clean away any debris and grime from the mating threads of the spindle and chuck or faceplate, then apply a thin coat of light machine oil to the threads.



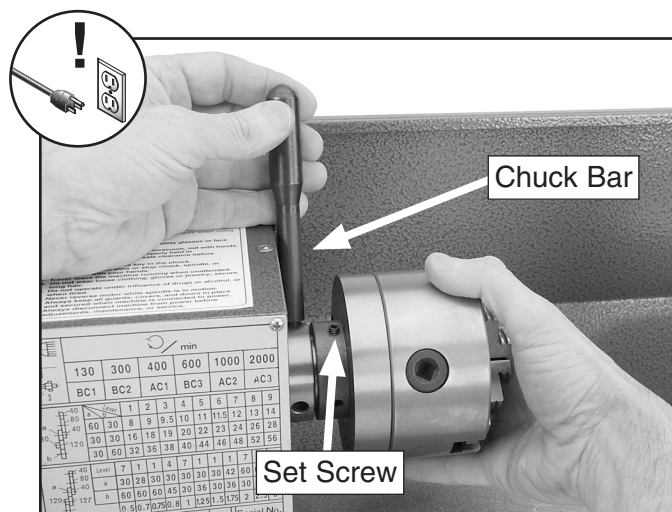
## WARNING



**PINCH HAZARD!** Protect your hands and the precision ground bedways with plywood when removing the lathe chuck! The heavy weight of a falling chuck can cause serious injury or damage the bedway.


4. Insert the longer chuck removal bar into the spindle indent to hold the spindle still, then thread the chuck or faceplate onto the spindle and hand-tighten it, as shown in **Figure 15**.

**Note:** Overtightening the chuck or faceplate onto the spindle will make removal difficult and could damage the threads.

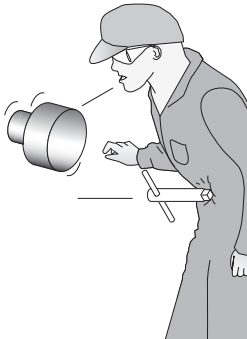


**Figure 15.** Mounting the 3-jaw chuck.

5. Tighten the set screw shown in **Figure 15** to prevent the chuck or faceplate from coming loose when the spindle is rotating in reverse.
6. Remove the plywood from the bedway and any tools used before starting the lathe.



## WARNING



**Make sure the chuck/faceplate is firmly secured on the spindle and remove the chuck tools before operation. Objects thrown from the lathe could cause serious personal injury or death to the operator or bystanders.**

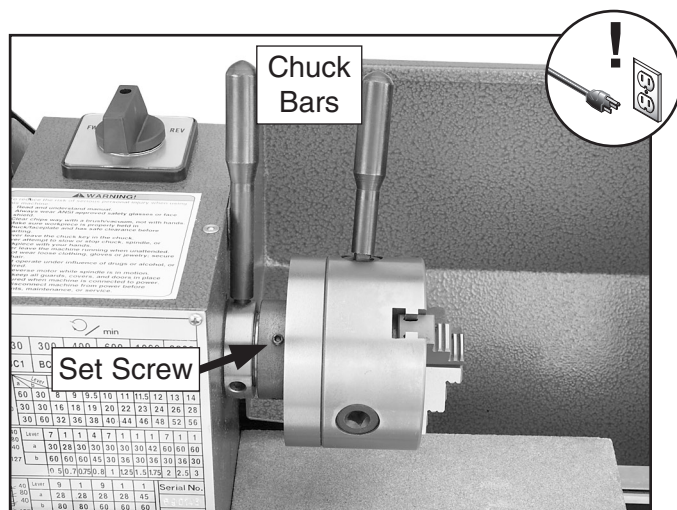




## Removing a Chuck or Faceplate

1. DISCONNECT LATHE FROM POWER!
2. Lay a piece of plywood on the bedway underneath the spindle to protect the precision ground surfaces.
3. Loosen both set screws, then insert one chuck bar into the spindle indent to hold the spindle still (see **Figure 16**).

**Note:** If removing a chuck, insert the remaining chuck bar into a scroll keyway, as shown in **Figure 16**.



**Figure 16.** Chuck bar positioning.

4. Rotate the chuck or faceplate counterclockwise to unthread it from the spindle, then thoroughly clean and lubricate it.

## ⚠ CAUTION

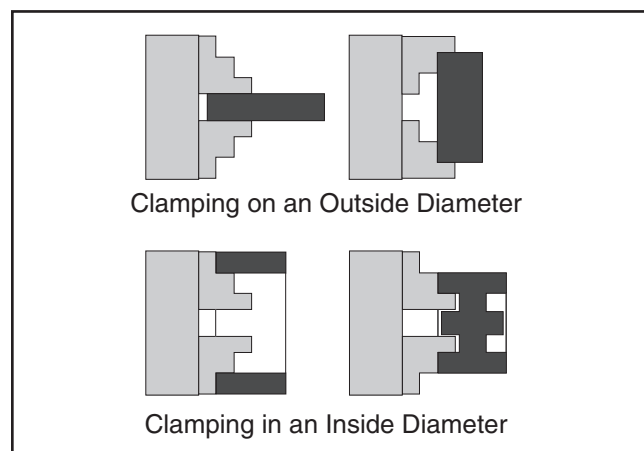
No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

## 3-Jaw Chuck

The 3-jaw chuck included with your lathe is a scrolling-type chuck, which means all three jaws move equally when the chuck key is turned. This jaw configuration is used to hold concentric workpieces that are centered with equal pressure from all three jaws.

There is also a reverse set of jaws included with your lathe that accommodate additional workpiece configurations (see **Figure 17** for examples). Both sets of jaws can hold a workpiece on the inside or outside surface of the jaw. No matter how you configure the jaws, make sure the workpiece is firmly secured to the chuck.

Mount or remove the 3-jaw chuck on the spindle, according the instructions beginning on **Page 19**.



**Figure 17.** Examples of workpiece holding configurations.

Tools Needed	Qty
3-Jaw Chuck Key .....	1

## Mounting Workpiece

1. DISCONNECT LATHE FROM POWER!
2. Lay a piece of plywood on the bedway underneath the spindle to protect the precision ground surfaces.
3. Insert the chuck key into a scroll keyway and rotate it counterclockwise to open the jaws until the workpiece sits flat against the chuck face, evenly on the jaw steps, or fits into the chuck hole and through the spindle bore.



4. Close the jaws until they make light contact with the workpiece, as shown in **Figure 18**.



**Figure 18.** Example of a concentric shaft secured in the 3-jaw chuck.

5. Turn the chuck by hand to make sure the workpiece is evenly held by all three jaws and is centered on the chuck.

—If the workpiece is not centered, loosen the jaws and adjust the workpiece, then re-tighten the jaws and repeat **Step 5**.

—If the workpiece is centered, fully tighten the jaws.

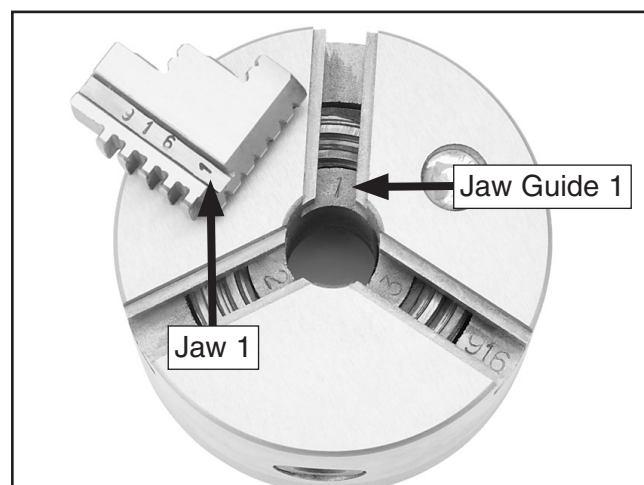
## Removing Jaws

1. DISCONNECT LATHE FROM POWER!
2. Place a piece of plywood on the bedway to protect it, then remove the chuck from the lathe.
3. Lay the chuck on a flat, stable surface, then insert the chuck key into a scroll keyway and rotate it counterclockwise to back the jaws all the way out of the jaw guides.
4. Thoroughly clean the jaws with shop rags and mineral spirits, then apply a thin coat of an anti-rust protective lubricant before storing them in a protected location free from moisture and abrasives.

## Installing Jaws

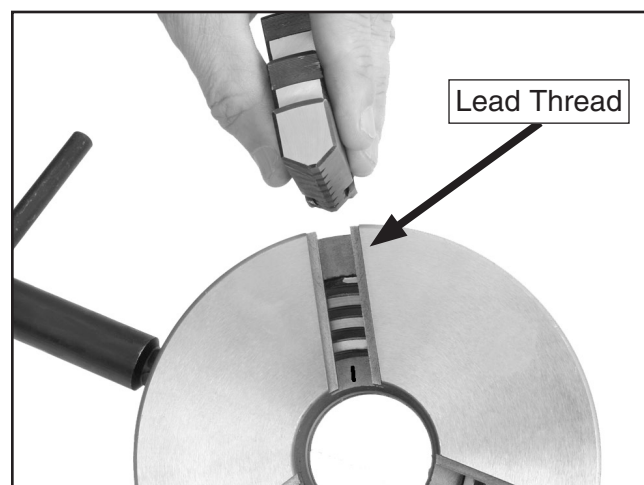
1. Place the chuck on a flat, stable surface.
2. Examine the sides of the jaws—each is stamped with a number 1 through 3. Examine the jaw guides of the chuck—each is stamped with a corresponding number (see **Figure 19**)

**Note:** The jaws and jaw guides are machined to match and each jaw must be installed in its corresponding jaw guide.



**Figure 19.** Jaw and jaw guide stamped with corresponding numbers.

3. Insert the chuck key into a scroll keyway and rotate it until you see the beginning of the scroll gear's lead thread come into view through the #1 jaw guide, then back it off slightly until it disappears (see **Figure 20**).



**Figure 20.** Installing jaw #1.



4. Slide the #1 jaw into the #1 jaw guide and hold it firmly against the scroll gear threads, then rotate the chuck key clockwise approximately one turn until the lead thread engages with the jaw.

**Note:** Tug on the jaw to make sure it is engaged with the scroll gear thread.

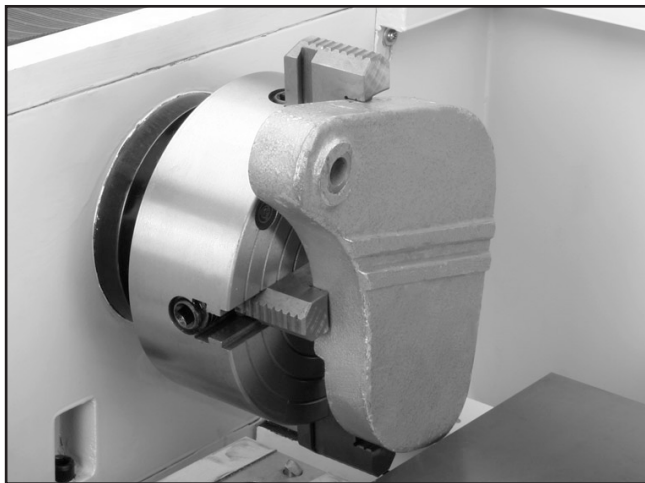
5. Repeat **Steps 3–4** for jaws #2 and #3 in sequence.
6. Rotate the chuck key clockwise to bring the jaws together in the center of the chuck.

—If installed correctly, the jaws will converge evenly at the center of the chuck.

—If the jaws do not come together evenly, remove them, make sure the numbers of the jaws and the jaw guides match, then properly re-install them.

## 4-Jaw Chuck

The 4-jaw chuck included with your lathe features independently adjustable, hardened steel jaws. Each jaw can be removed from the chuck body and reversed for a wide range of work holding configurations. The 4-jaw chuck is typically used to hold non-concentric workpieces (see **Figure 21** for an example).



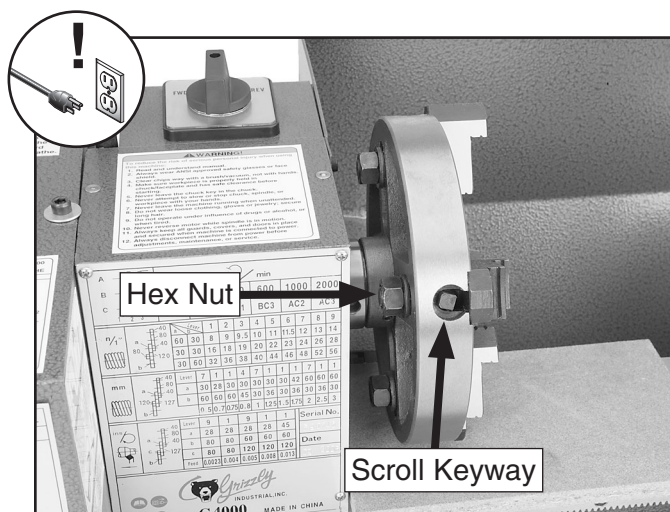
**Figure 21.** Example of a non-concentric workpiece held in a 4-jaw chuck.

Mount or remove the 4-jaw chuck according to the instructions beginning on **Page 19**.

Tools Needed	Qty
Hex Wrench 3mm.....	1
Wrench 19mm .....	1
4-Jaw Chuck Key .....	1

## Mounting Workpiece

1. DISCONNECT LATHE FROM POWER!
2. Lay a piece of plywood on the bedway underneath the spindle to protect the precision ground surfaces.
3. Loosen the hex nut on the back of the chuck for each jaw (see **Figure 22**).



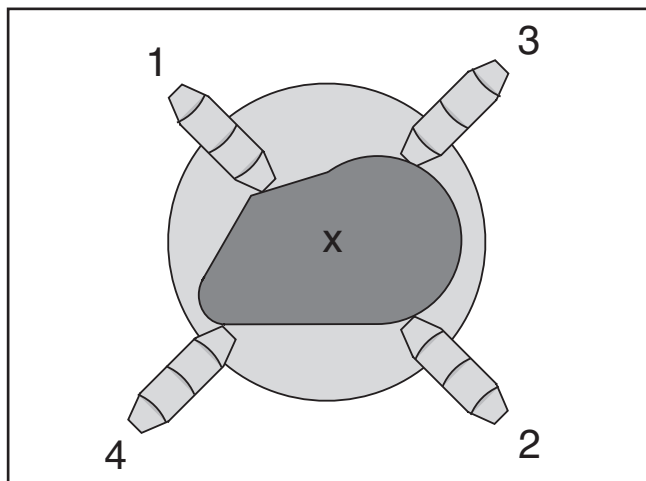
**Figure 22.** 4-jaw chuck components.

4. With assistance to support the workpiece, use the chuck key to open each jaw until you can position the workpiece flat against the chuck face or evenly on the jaw steps.





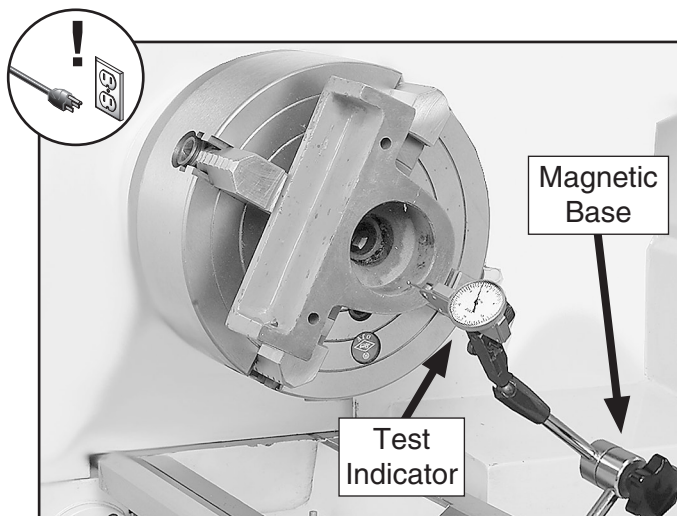
5. Tighten each jaw in small increments in an opposing sequence, as illustrated in **Figure 23**, until the workpiece is firmly secure in the desired position.



**Figure 23.** Opposing tightening sequence for the 4-jaw chuck.

6. Make fine adjustments to the workpiece position by using a test indicator mounted on a magnetic base and adjusting the jaws until the workpiece is precisely aligned for your operation (see **Figure 24** for an example).

**Note:** Refer to **ACCESSORIES** on **Page 42** for test indicator options from Grizzly.



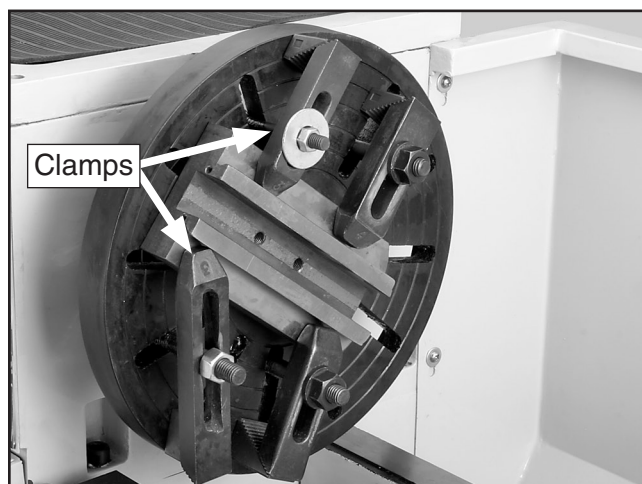
**Figure 24.** Example of using a test indicator to precisely align a non-concentric workpiece.

## ⚠ WARNING

Always use a low spindle speed when machining non-concentric or off-center workpieces to reduce the risk of ejecting the workpiece from the holding device at a high rate of speed. Failure to heed this warning could lead to serious personal injury, death or property damage.

## Faceplate

The faceplate is used to hold non-concentric and off-center parts. Although more versatile in mounting these types of workpieces than the 4-jaw chuck, it requires more work to properly clamp the workpiece (see **Figure 25** for an example).



**Figure 25.** Example of a non-concentric workpiece clamped to a faceplate.

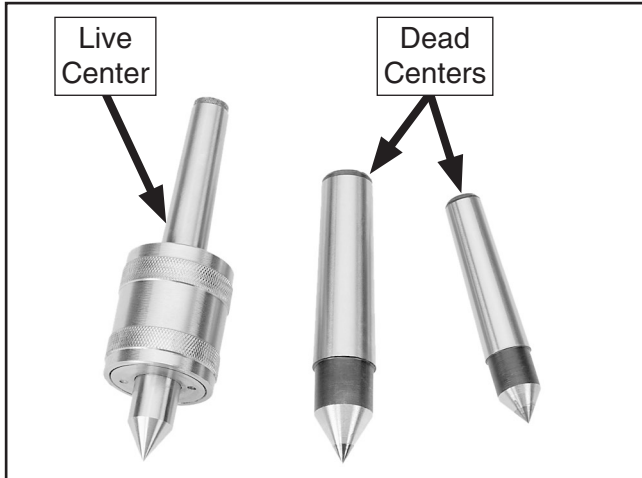
## NOTICE

You must use a minimum of three independent clamping devices when using the faceplate to hold a workpiece. Refer to **ACCESSORIES** on **Page 42** for clamping options from Grizzly.



# Centers

Your Model G4000 lathe includes three centers: 1) an MT#2 live center, 2) an MT#3 dead center, and 3) an MT#2 dead center, as shown in **Figure 26**.

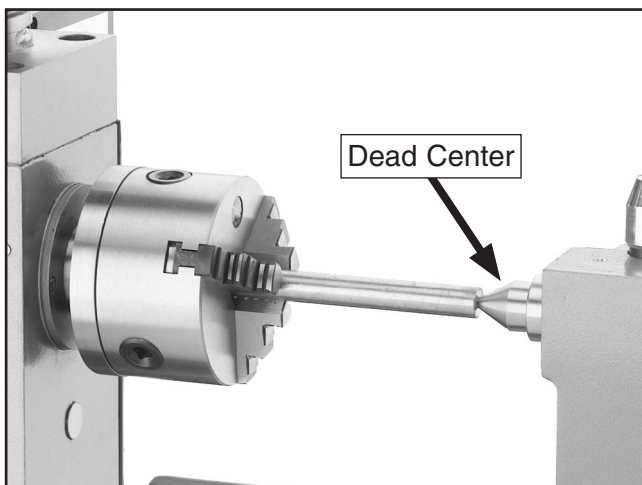


**Figure 26.** The Model G4000 centers.

The spindle taper is an MT#3 and will only receive the MT#3 dead center. The tailstock quill can accommodate both the MT#2 live and dead center.

## Dead Centers

The MT#2 dead center installed in the tailstock quill is used to support stock that is too long to be supported by the chuck alone (see **Figure 27** for an example).

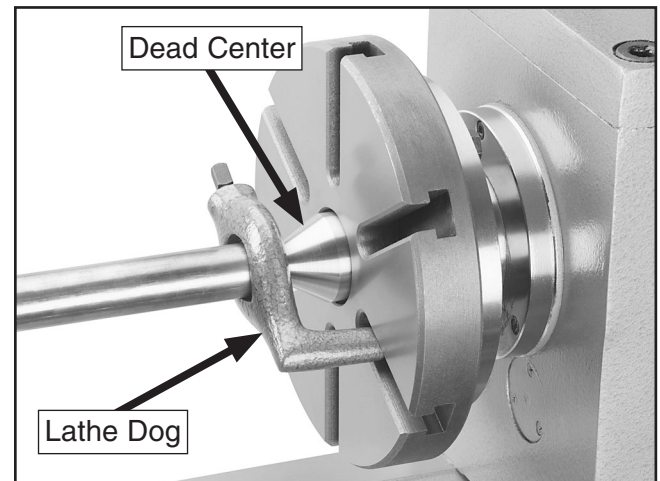


**Figure 27.** Example of using a dead center installed in the tailstock.

When mounting a long, slender workpiece that extends more than  $2\frac{1}{2}$  times its diameter beyond the chuck jaws, use a center mounted in the tailstock to support it.

Since the dead center does not rotate with the workpiece when used in the tailstock, the tip of the center must be lubricated with an anti-sieze lubricant to avoid premature wear and maximize smooth operation. Also, keep the spindle speeds low to reduce the heat and wear from friction.

Install a lathe dog when using the MT#3 dead center in the spindle (see **Figure 28** for an example).



**Figure 28.** Example of using a dead center with a faceplate and lathe dog.

## ⚠ WARNING

When using a center in the spindle to mount a workpiece, the other end of the workpiece **MUST** be supported by a center installed in the tailstock quill to safely hold the workpiece in place during operation. Otherwise, the workpiece will leave the lathe when the spindle rotates and could cause serious personal injury or property damage.



## Live Centers

The dead center achieves a more accurate finished product but requires low spindle speeds to avoid heat from friction damaging the center of workpiece. The live center has bearings that allow the center tip and the workpiece to rotate together, and can be installed in the tailstock quill for higher speeds and less time spent lubricating the tip, but with a slight bit of accuracy loss.

## Using Dead Center in the Spindle

1. DISCONNECT LATHE FROM POWER!
2. Thoroughly clean the tapered mating surfaces of the spindle bore and the MT#3 dead center, then insert the center into the spindle bore through the chuck or faceplate.
3. Install a lathe dog on the workpiece, then mount the workpiece between the spindle and tailstock centers with the lathe dog inserted into the chuck or faceplate (see **Figure 28** on the previous page for an example).
4. To remove the center from the spindle, insert a piece of round bar stock or similar tool through the outboard end (on the left side of the headstock), then tap the center loose.

**Note:** Hold onto the center as you tap it loose to avoid dropping it and damaging the tip or the bedways.

### **NOTICE**

To avoid premature wear of the dead center or damage to the workpiece, always use lower spindle speeds and keep the dead center tip well lubricated.

## Using a Center in the Tailstock

1. DISCONNECT LATHE FROM POWER!
2. Thoroughly clean the tapered mating surfaces of the tailstock quill bore and the center.
3. Use the tailstock handwheel to feed the quill out from the casting at least  $\frac{1}{2}$ ", but for purposes of stability and accuracy no more than  $1\frac{1}{4}$ ".

**Note:** The scale on the tailstock handwheel is marked in 0.025mm increments (approximately 0.001") with one full revolution moving the quill 1.25mm (approximately 0.050").

4. Seat the center into the quill, position the tailstock so that the tip of the center presses against the workpiece enough to hold it in place, then tighten the tailstock lock nut.
5. Rotate the tailstock handwheel clockwise to feed the center farther into the workpiece until it is snug, then tighten the quill lock lever.

**Note:** The force against the mounted workpiece will fully seat the center's taper into the quill. However, do not overly force the center into the workpiece with the handwheel—this will make removing the center very difficult and could damage it.

6. To remove the center from the quill, hold onto it with one hand, then rotate the tailstock handwheel counterclockwise to draw the quill back into the casting until the center releases.



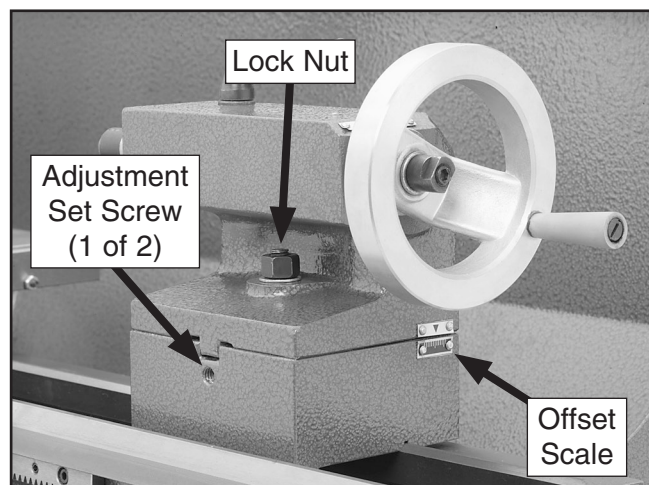
# Offsetting Tailstock

The tailstock can be offset slightly from the spindle center line to cut shallow tapers in a workpiece mounted between centers. When the tailstock is offset toward the operator, the machined workpiece will be smaller at the tailstock end. Conversely, if the tailstock is offset away from the operator, the taper will be smaller at the spindle end.

Tools Needed	Qty
Hex Wrench 4mm.....	1
Wrench 14mm .....	1

## To set the tailstock offset:

1. Loosen the tailstock lock nut (see **Figure 29**).



**Figure 29.** Tailstock offsetting controls.

2. Alternately loosen and tighten the two adjustment set screws (one on either side of the tailstock) until the desired offset is indicated on the offset scale, then retighten the lock nut.
3. To return the tailstock back to the original position, repeat **Step 2** until the centered position is reached.

**Note:** For purposes of accuracy, you may want to perform the **Aligning Tailstock** procedure on **this page** after offset adjustments have been made.

# Aligning Tailstock

The tailstock was aligned with the spindle at the factory. However, we recommend that you take the time to ensure that the tailstock is aligned to your own desired tolerances, especially if you have made tailstock offset adjustments.

## To align the tailstock with the spindle:

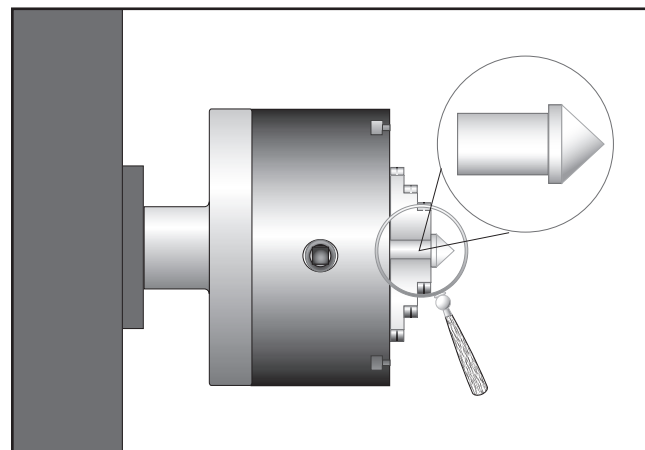
1. Use a precision level to make sure the lathe bedway is exactly level from side-to-side and front-to-back. If necessary, use shims between the lathe and chip pan.

2. Center drill a 6" long piece of round bar stock on both ends. Set it aside for use in **Step 5**.

**Note:** If the tailstock is out of alignment by only a few thousands of an inch, the center drill will find the center point during the drilling process. If the tailstock appears grossly out of alignment, adjust the tailstock offset until it appears to be centered.

3. Make a dead center by turning a shoulder on a similar piece of round stock, then flip the piece over in the chuck and turn a 60° point (see **Figure 30**).

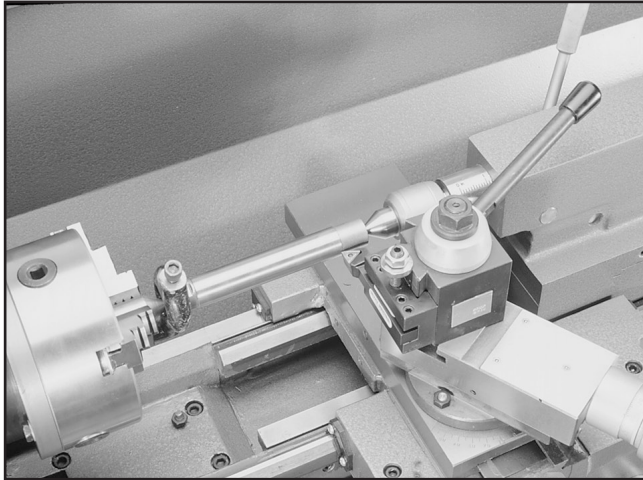
**Note:** As long as the fabricated dead center remains in the chuck, the point of this center will remain true to the spindle center line. However, if it is removed, the point will have to be re-finished before using it for this procedure again.



**Figure 30.** The fabricated dead center.



4. Install the MT#2 dead center into the tailstock.
5. Attach a lathe dog on the spindle end of the bar stock from **Step 2**, then mount the workpiece between the centers (see **Figure 31** for an example).



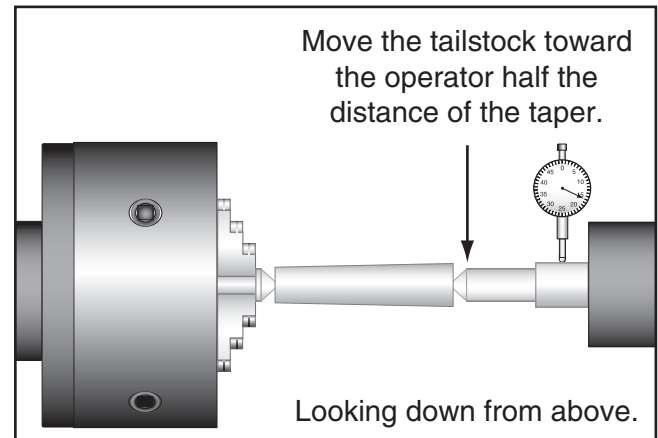
**Figure 31.** Example of bar stock mounted between centers.

6. Turn approximately 0.010" off the diameter of the entire length of the workpiece.
7. Mount a test or dial indicator so that the plunger is on the tailstock quill.

**Note:** If necessary in the following step, refer to **Offsetting Tailstock** on **Page 26** for adjusting the tailstock position.

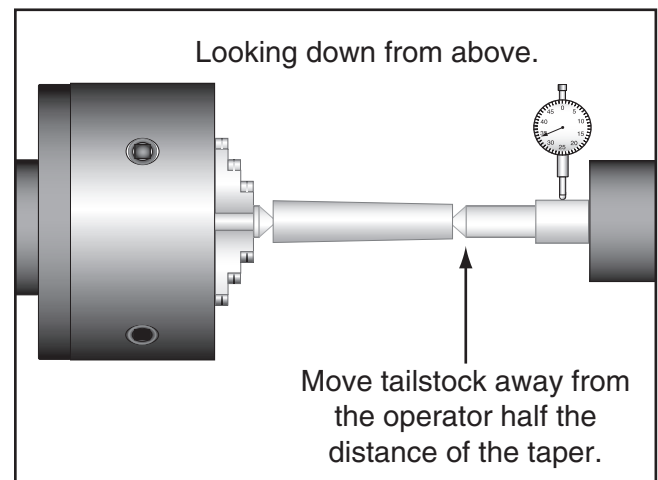
8. Use a caliper to measure both ends of the workpiece.

—If the machined workpiece is *thicker* at the tailstock end, move the tailstock *toward* the operator  $\frac{1}{2}$  the distance of the amount of taper (see **Figure 32**).



**Figure 32.** Adjust tailstock toward the operator.

—If the machined workpiece is *thinner* at the tailstock end, move the tailstock *away* from the operator  $\frac{1}{2}$  the distance of the amount of taper (see **Figure 33**).

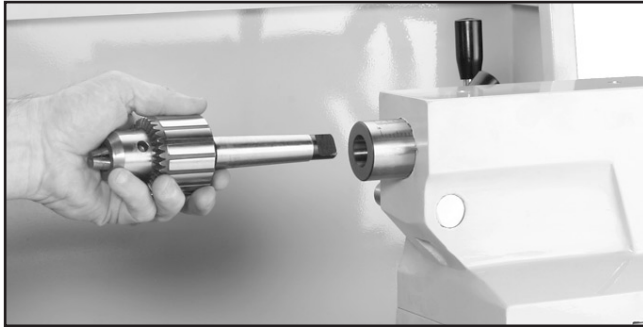


**Figure 33.** Adjust tailstock away from the operator.

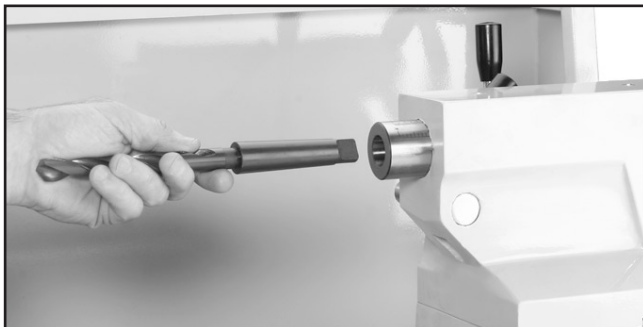


# Drilling with Tailstock

The tailstock can be used to drill holes by mounting a drill bit in the tailstock, rotating the workpiece with the spindle, then using the tailstock quill handwheel to advance the drill bit into the workpiece. See **Figures 34–35** for examples of drill chuck and tapered drill bit installation.



**Figure 34.** Example of drill chuck installation.



**Figure 35.** Example of drill bit installation.

# Steady Rest

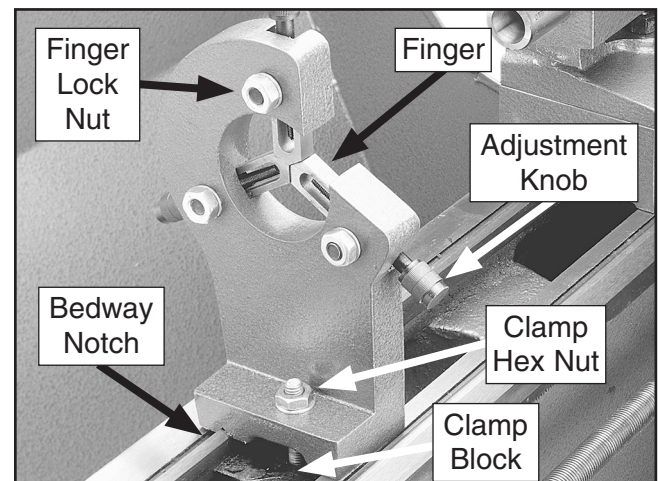
The steady rest serves as a support for long, slender workpieces that extend beyond the chuck or faceplate more than  $2\frac{1}{2}$  times its diameter and a center mounted in the tailstock cannot be used. This is accomplished by adjusting the brass fingers of the rest so that they evenly contact the workpiece on three sides to support it and still allow it to freely rotate.

The steady rest can be positioned for purposes of stability and accuracy on either side of the carriage and anywhere along the bedway.

Tools Needed	Qty
Wrench 13mm .....	1

## To install and use the steady rest:

1. DISCONNECT LATHE FROM POWER!
2. Remove the clamp hex nut, bolt, and clamp block from the bottom of the steady rest (see **Figure 36**).



**Figure 36.** Steady rest components.

3. Clean away any debris and grime from the bedways, the steady rest ways, and the clamp block.
4. Align the bedway notch in the base of the steady rest with the rear bedway, then secure the rest with the hardware removed in **Step 2**.



5. Loosen the finger lock nuts, turn the adjustment knobs until the fingers make even contact with the workpiece, then re-tighten the lock nuts.

**Note:** *The fingers should rest against the workpiece to fully support it at all three points, but also allow it to freely rotate with the spindle without causing deflection.*

6. Lubricate the finger tips with anti-seize grease during operation.

**Note:** *After prolonged use, the fingers will require milling or filing to clean up the contact surfaces.*

## Follow Rest

The follow rest shown in **Figure 37** is mounted on the front of the carriage saddle and follows the movement of the tool along the length of the workpiece. The follow rest is used on long, slender parts to prevent flexing of the workpiece from the pressure of the cutting tool. This rest requires only two fingers as the cutting tool acts as the third support.



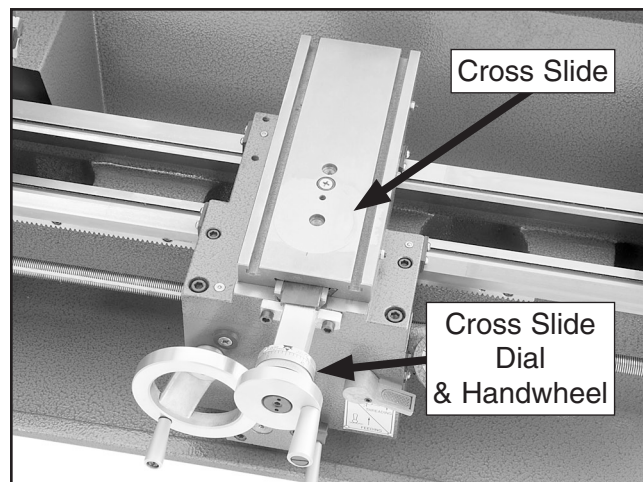
**Figure 37.** Follow rest.

The follow rest is installed/removed with two cap screws at the base. The fingers are set against the workpiece in the same manner as those of the steady rest. Always lubricate the finger tips with an anti-seize grease during operation.

## Cross Slide

Handwheel Dial Increments	Distance
One Increment.....	0.025mm (approx. 0.001")
One Full Rotation .....	1.250mm (approx 0.050")

The cross slide sits directly on the carriage saddle and moves the cutting tool perpendicular to the workpiece when the handwheel is rotated (see **Figure 38**).



**Figure 38.** Cross slide (compound slide removed for photo clarity).

The cross slide dial on your lathe has a 2:1 ratio.

This means:

- The dial shows the actual distance the tool moves in-or-out.
- The amount removed from the workpiece will be **twice** the distance the dial indicates.

For example, if you wanted to remove 0.200" from the diameter of the workpiece, you would rotate the cross slide handwheel only 0.100" as indicated on the dial.

# Compound Slide

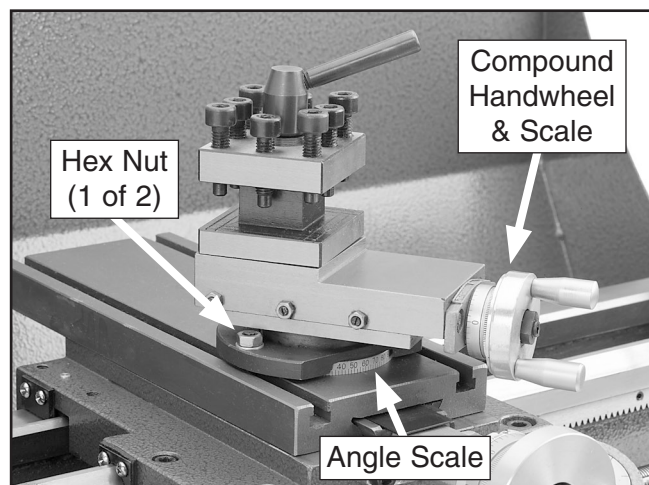
Handwheel Dial Increments	Distance
One Increment.....	0.001"
One Full Rotation .....	0.040"

The compound slide sits on the cross slide and is the base for the tool post. This slide rotates around its mounting on the cross slide and moves in-and-out using the handwheel. These features allow the operator to engage the cutting tool with the workpiece at any angle necessary for the operation.

Tools Needed	Qty
Wrench 10mm .....	1

## To set the compound slide angle:

1. Loosen the hex nuts on either side of the compound slide (see **Figure 39**).



**Figure 39.** Compound slide controls.

2. Rotate the slide until the desired angle is indicated on the angle scale, then re-tighten the two hex nuts.

# Tool Holders

Your Model G4000 lathe ships with a 4-way tool post and C-type tool holder. The advantage of the 4-way tool post is that it can hold four cutting tools at one time, and each tool can be quickly indexed (rotated) to the workpiece as needed.

## 4-Way Tool Post

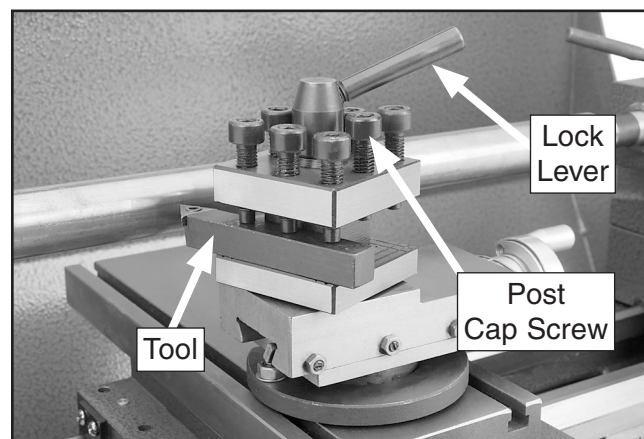
Tools Needed	Qty
Hex Wrench 6mm.....	1

## To use the 4-way tool post:

1. Loosen the tool post cap screws until the tool fits underneath them, as shown in **Figure 40**, then evenly and firmly tighten the cap screws to secure the tool.

## NOTICE

To properly secure the tool against the forces of cutting, the tool must be firmly secured with at least two post cap screws.



**Figure 40.** 4-way tool post with tool mounted.

2. Repeat **Step 1** for any remaining tools.
3. Loosen the lock lever, rotate tool post to index the desired tool to the workpiece, then re-tighten the lock lever.

**Note:** The 4-way tool post is aligned in four rotational positions by an indexing pin mounted in the compound slide that engages slots underneath the tool post base.





## C-Type Tool Holder

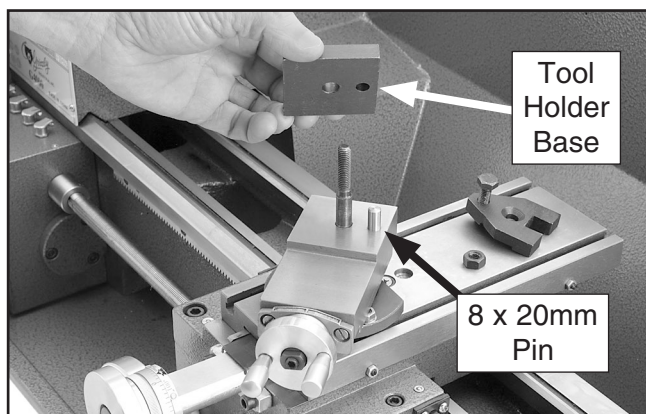
### Tools Needed

Wrench 13mm ..... 1

Qty

### To use the C-type tool holder:

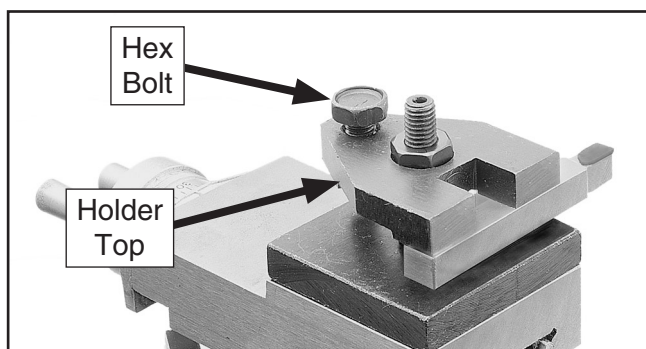
1. DISCONNECT LATHE FROM POWER!
2. Remove the 4-way tool post from the compound slide.
3. Replace the beveled pin from the compound slide with the 8 x 20mm pin (see **Figure 41**).



**Figure 41.** C-type tool holder components.

4. Slide the tool holder base onto the tool post bolt, then rotate it until the pin is inserted into the base indent.
5. Thread the M8-1.25 x 30 hex bolt into the holder top, slide the top onto the tool post bolt, then secure the tool with the M8-1.25 hex nut (see **Figure 42**).

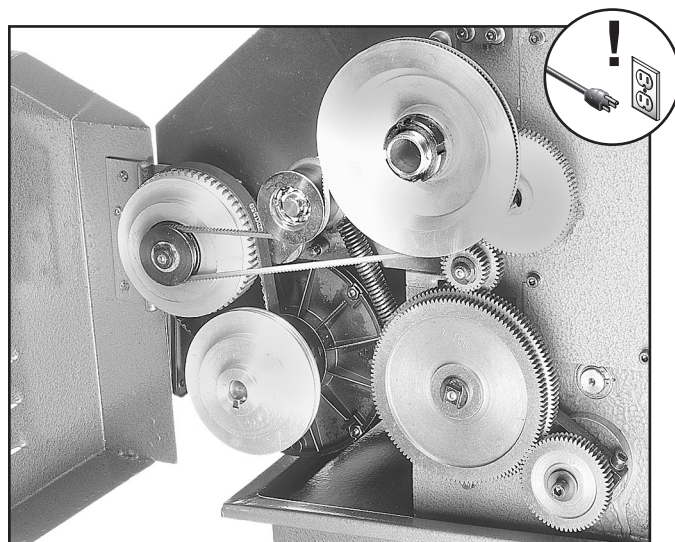
**Note:** Thread the hex bolt up or down to make sure the holder top is level and makes even contact with the tool.



**Figure 42.** Cutting tool properly installed in the C-type tool holder.

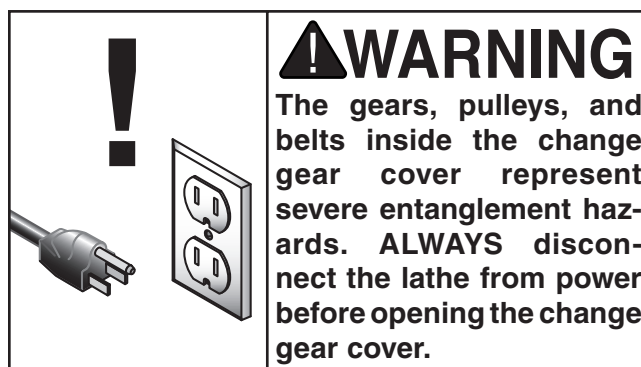
## Spindle Speed

The spindle speed is controlled by belts and pulleys inside the change gear cover (see **Figure 43**).



**Figure 43.** Belts and gears inside the change gear cover.

To set the correct spindle speed for your operation, you will need to: 1) Determine the spindle speed (RPM) needed for your operation, and 2) configure the spindle belt on the pulleys for the calculated speed.





## Calculating Correct Spindle Speed

1. Use the table in **Figure 44** to determine the recommended cutting speed for the workpiece material.

**Note:** Cutting speeds are expressed in SFM (surface feet per minute) that the workpiece moves against the cutter, which is different from the spindle speed (RPM).

Recommended Cutting Speeds		
Work Material	Average Tool Speed (sfm)	
	Rough Cuts	Finish Cuts
Magnesium	400	800
Aluminum	350	700
Brass & Bronze	250	500
Copper	100	250
Cast Iron (Soft)	100	250
Cast Iron (Hard)	50	150
Mild Steel	100	250
Cast Steel	70	150
Alloy Steels (Hard)	50	150
Tool Steel	50	150
Stainless Steel	60	180
Titanium	90	200
Hi Manganese Steel	40	100
<b>Note:</b> These values are based on HSS cutting tools. For carbide cutting tools, double the average speed. These values are a guideline only. Refer to the MACHINERY'S HANDBOOK for more detailed information.		

**Figure 44.** Cutting speed table.

2. Determine the final diameter, in inches, for the cut you intend to make.

**Note:** For this step, you will need to average out the diameters or work with the finish diameter.

3. Use the following formula to determine the correct spindle speed (RPM) for your operation:

$$\text{Spindle Speed} = \frac{\text{Cutting Speed (SFM)} \times 4}{\text{Diameter of Cut}}$$

### Example A:

You will finish cut 1/2" diameter piece of cast steel stock, using an HSS cutting tool.

#### Step 1:

150 (SFM from chart) x 4 = 600

#### Step 2:

600 / .5" (Diameter of workpiece) = 1200

#### Result:

The correct spindle speed is 1200 RPM.

### Example B:

You will rough turn a 1" diameter piece of stainless steel, using a carbide cutting tool.

#### Step 1:

60 (SFM from chart) x 2 (for carbide tool) = 120

#### Step 2:

120 (Calculated SFM) x 4 = 480

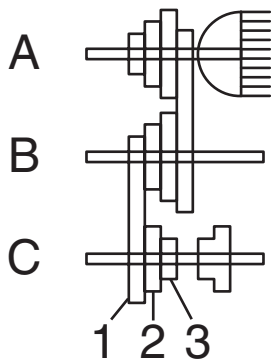

#### Step 3:

480 / 1" (Diameter of workpiece) = 480 RPM

#### Result:

The correct spindle speed is 480 RPM.



						
	120	300	400	600	1000	2000
	BC1	BC2	AC1	BC3	AC2	AC3

**Figure 45.** Model G4000 spindle speed configuration chart.

## Configuring Spindle Belt

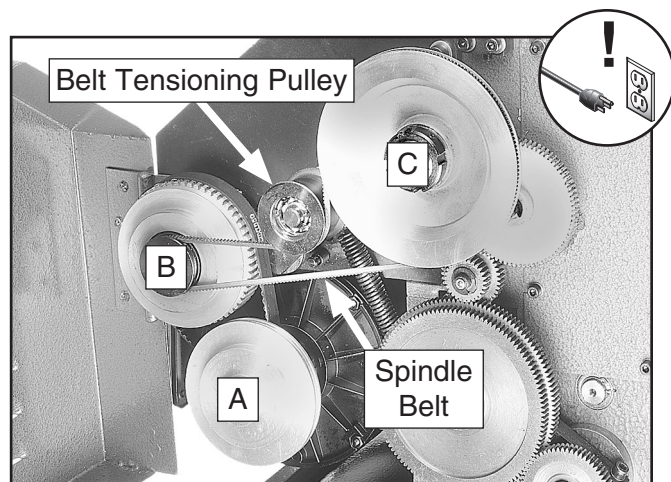
There are six spindle speeds available by properly positioning the spindle belt on the motor pulley (A), the idler pulley (B), and the spindle pulley (C).

### To configure the spindle belt:

1. DISCONNECT LATHE FROM POWER.
2. Refer to the chart in **Figure 45** above and find the spindle speed that is closest to your calculated spindle speed.

**Note:** This chart is also on the front of the headstock. In most cases, the calculated spindle speed will be between the available speeds. Use your best judgement when choosing either the higher or lower speed.

3. Open the change gear cover and use **Figure 46** to identify the motor (A), idler (B), and spindle (C) pulleys, the spindle belt, and the belt tensioning pulley.



**Figure 46.** Spindle speed pulleys and spindle belt.

4. Release the tension on the spindle belt by pulling the belt tensioning lever all the way forward.
5. Position the spindle belt onto the pulley combination as indicated under the selected spindle speed in the chart, then push the belt tensioning lever all the way back to apply the proper tension to the spindle belt.

**Note:** Use the illustrations in **Figure 47** on the next page to aid in the spindle belt configuration.

6. Close and secure the change gear cover before connecting the machine to power.

### Example:

You will need to configure the lathe for a spindle speed of 1200 RPM, as required by **Example A** on the previous page.

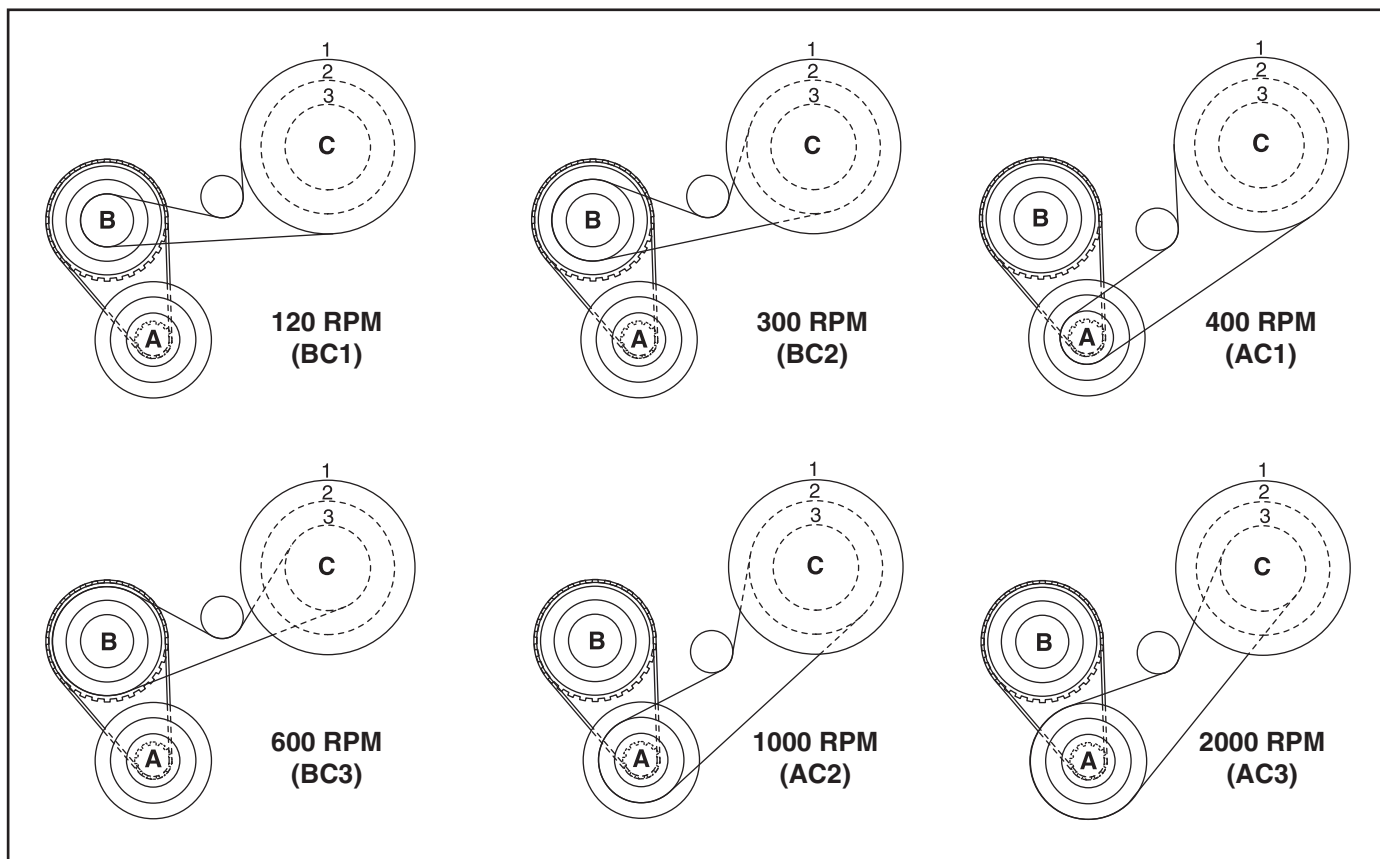
**Step 1:** Examine the spindle speed chart to find that the available speed of 1000 RPM is the closest to the calculated speed.

**Step 2:** Note that the spindle belt configuration underneath 1000 RPM on the chart is AC2.

**Step 3:** Position the spindle belt on the second pulley slot on the motor and spindle pulleys.

**Note:** The pulley slots are counted 1 through 3, beginning with the outside slot.

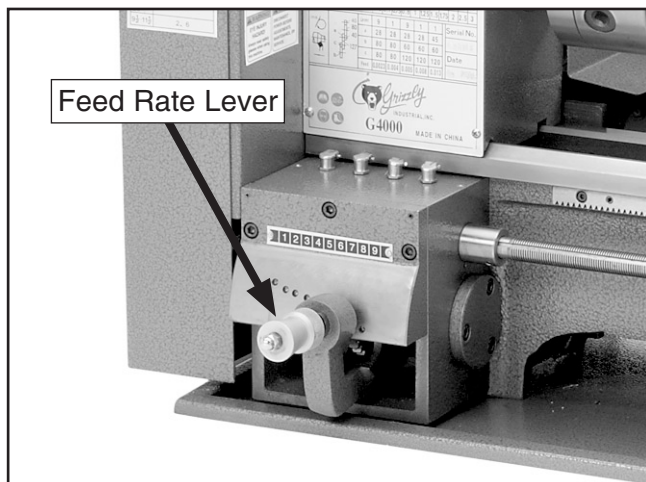




**Figure 47.** Illustrations of spindle belt configurations for each available spindle speed.

## Feed Rate Lever

The feed rate lever shown in **Figure 48** is used with the change gears to provide the various powered feed rates for the carriage.



**Figure 48.** Feed rate lever.

## NOTICE

Attempting to move the feed rate lever when the spindle is rotating will damage the internal gears of the power feed mechanism and will void the warranty. **NEVER** attempt to move the feed rate lever when the lathe is running.

**To set the feed rate lever:**

1. Make sure the spindle is **OFF** and has come to a complete stop.

*Continued on next page* →



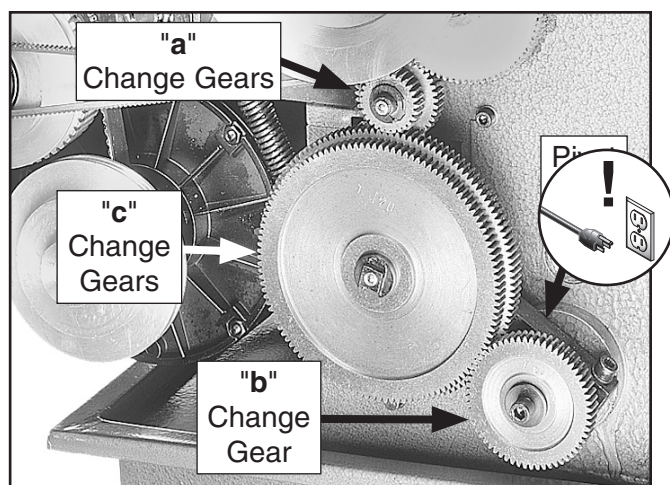
**Note:** In the next step, the gears must properly mesh. It may be necessary to rock the spindle back-and-forth by hand until the gears mesh. Also, use one hand on the bottom of the lever to apply sideways pressure when moving it.

2. Pull the lever knob out, slide the lever under the correct hole, raise it up to align the lever pin with the hole, then release the knob.

**Note:** Make sure the lever pin is firmly seated into the hole before continuing the operation.

## Change Gears

In addition to setting the feed rate lever, the change gears shown in **Figure 49** work with the feed rate lever to provide the various powered feed rates for the carriage.



**Figure 49.** Change gears.

**When configuring the change gears, follow these rules to ensure good results:**

- When removing or replacing the change gears, thoroughly clean the gears, bushings, and the gear shafts with a stiff brush and mineral spirits. When dry apply a thin coat of light machine oil to the gear teeth, the bushings, and the gear shafts to prevent corrosion and ensure smooth movement.

- Leave 0.002"–0.003" of backlash between the gears when you mesh them together so that they do not bind.
- To avoid restricting gear rotation, do not overly tighten the fasteners that secure them. This hardware is intended to just keep them in place.
- Before starting the lathe, rotate the change gears by hand to make sure they have proper backlash and rotate freely.

To learn how to configure the change gears, perform the following instructions to set up the lathe for the feed rate of 0.0078 in./rev. (inches of travel per revolution of the spindle), which is referred to in the grayed sections of the feed rate chart in **Figure 50**.

	Lever	9	5	1	
	a	28	28	28	4
	b	60	60	60	6
	c	120	120	120	1
	Feed	0.0047	0.0063	0.0078	0.0109

**Figure 50.** Sections of the feed rate chart grayed illustrate the example.

### Tools Needed

	Qty
Hex Wrench 5mm.....	1
Wrench or Socket 10mm.....	1
Flat Head Screwdriver #2.....	1

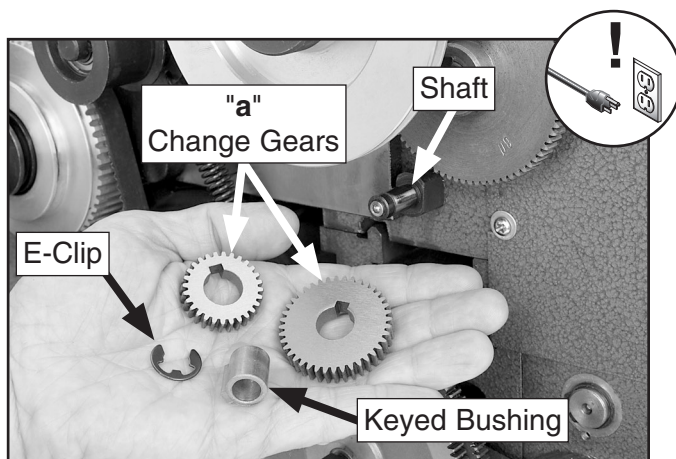
**To configure the change gears for a feed rate of 0.0078 in./rev.:**

1. DISCONNECT LATHE FROM POWER!
2. Open the change gear cover.
3. Loosen the cap screw that secures the pivot arm, then lower the "c" gears away from the "a" gears (see **Figure 49**).



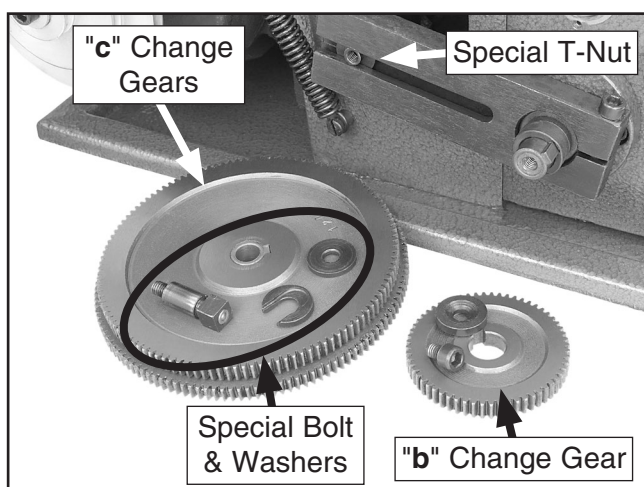


4. Remove the E-clip that secures the "a" gears, then remove the gears from the shaft (see **Figure 51**).



**Figure 51.** "a" change gears and shaft components.

5. Carefully remove the keyed bushing from the center of the gears, orient the 28T and 40T gears together, then re-insert the bushing to secure the assembly.
6. Slide the "a" gears onto the gear shaft so that the 28T gear is facing out and the 40T gear meshes with the 80T gear above it, then secure them in place with the E-clip.
7. Remove the special bolt and washers that secure the "c" gears, then remove the gears from the gear shaft (see **Figure 52**).



**Figure 52.** "c" and "b" change gears removed.

8. Carefully remove the keyed bushing from the center of the gears, orient the 120T and 127T gears together, then re-insert the bushing to secure the assembly.

9. With the 120T gear facing out, insert the special bolt with the slotted washer through the front of the assembly, slide the remaining flat washer onto the bolt from the rear of the gears.

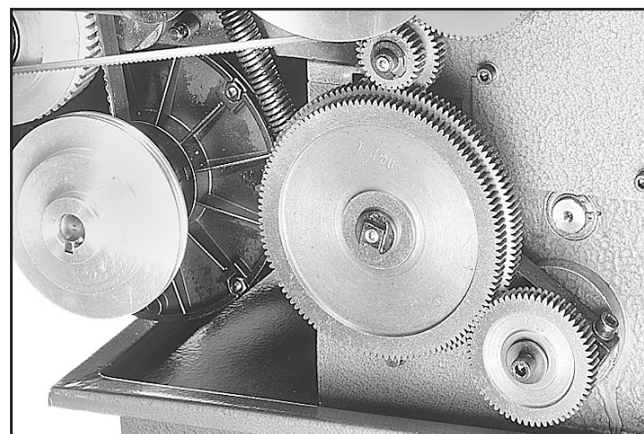
10. Thread the bolt into the special T-nut on the pivot arm, but leave it loose and slide the "c" gears to the left and away from the "b" gear.

11. Remove the cap screw and flat washer that secure the "b" gear, then remove the gear from the gear shaft (see **Figure 52**).

12. Align the keyway on the 60T gear with the gear shaft key, then install the gear and secure it with the cap screw and flat washer.

13. Move the "c" gear assembly to the right and mesh the 120T gear and the 60T "b" gear, then tighten the special bolt of the "c" gear to secure it in place.

14. Rotate the pivot arm up so that the 127T "c" gear and the 28T "a" gear mesh, then tighten the pivot arm cap screw to secure it in place, as shown in **Figure 53**.



**Figure 53.** Change gears configured for a feed rate of 0.0078".

15. Rotate the spindle pulley by hand to make sure that all the change gears are properly meshed, freely rotating, and with 0.002"—0.003" of backlash

—If the change gears are not properly meshed and freely rotating, repeat this procedure until they are.

16. Close and secure the change gear cover.





# Power Feed (Non-Threading)

Power feed on the Model G4000 simple means using the machine-driven components to move the carriage left or right along the workpiece rather than manually rotating the handwheel.

The powered speed at which the carriage travels is set with the feed rate lever and the change gears, but it is also dependent upon the spindle speed.

The correct powered feed rate of the carriage and the spindle speed is determined by the material to be machined, the type of tooling used, and by the desired finish. Refer to the table in **Figure 54** or the *Machinery's Handbook* for guidelines.

**Note:** This chart provides the cutting speed for a given feed rate. You must use the cutting speed with the formula on **Page 32** to calculate the correct spindle speed (RPM) for the chosen feed rate.

**Note:** These instructions are only valid for non-threading operations. To configure the feed rate for threading, refer to the **Threading** subsection on **Page 39**.

**To engage the power feed for non-threading operations:**

1. DISCONNECT LATHE FROM POWER!
2. Examine the feed rate chart in **Figure 56** to determine the necessary configurations for the change gears and feed rate lever.

**Note:** The feed rate chart is also displayed on the front of the headstock.

- a. Find the desired feed rate on the bottom row of the chart labeled **Feed**.
- b. Set the feed rate lever as directed by the number at the top of that column on the line labeled **Lever** (refer to **Feed Rate Lever** on **Page 34** for detailed instructions).

	Low Carbon Steel	High Carbon Annealed Steel	Normalized Allow Steel	Aluminum Alloys	Cast Iron	Bronze
<b>Rough Cutting Speed SFM</b>	90	50	45	200	70	100
<b>Rough Feed Rate IPR</b>	0.010" to 0.020"	0.010" to 0.020"	0.010" to 0.020"	0.015" to 0.030"	0.010" to 0.020"	0.010" to 0.020"
<b>Finish Cutting Speed SFM</b>	120	65	60	300	80	130
<b>Finish Feed Rate IPR</b>	0.003" to 0.005"	0.003" to 0.005"	0.003" to 0.005"	0.005" to 0.010"	0.003" to 0.010"	0.003" to 0.010"
<b>SFM</b> = Surface Feet per Minute <b>IPR</b> = Inches per Revolution						
<b>Note:</b> These values are for HSS cutting tools. For carbide cutting tools, double the cutting speed. These values still may need slight adjustment depending on the cutting tool rake and relief angles. Refer to the <i>MACHINERY'S HANDBOOK</i> for more detailed information.						

**Figure 54.** HSS cutting speed and feed rate table.



## NOTICE

Carriage feed rate is dependent upon the spindle speed—higher spindle speeds equal higher feed rates! Pay close attention to the rate of the powered carriage movement and keep your hand poised over the feed lever to disengage it when necessary. Failure to fully understand this could result in the carriage crashing into the headstock or tailstock causing severe damage to the lathe.

- c. Configure the change gears as directed in the **a**, **b**, and **c** rows of that column (refer to **Change Gears** on **Page 35** for detailed instructions).

**Note:** When configuring the change gears for non-threading feed rates, always have the 120T side of the "c" gear assembly facing out.

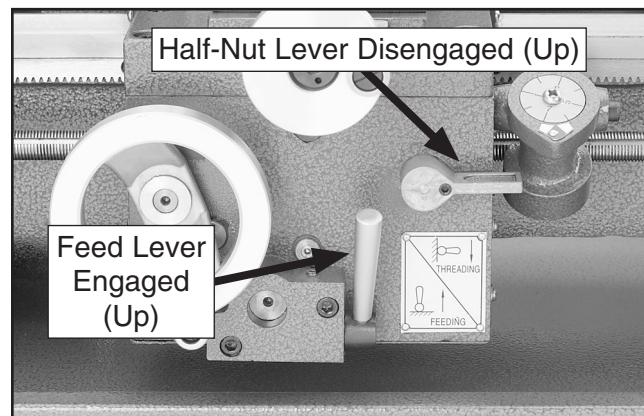
3. Use the handwheels to properly position the tool against the workpiece that is correct for your operation.

## NOTICE

**NEVER** attempt to engage the feed lever (up) and half-nut lever (down) at the same time, and **NEVER** force these levers. Otherwise, severe damage to the lathe could occur.

4. Push the feed lever up to engage the carriage gears with the leadscrew (see **Figure 55**).

**Note:** It may be necessary to rock the carriage handwheel back-and-forth to mesh the feed gear with the leadscrew.



**Figure 55.** Feed lever in the engaged (up) position.

5. Push the half-nut lever up to disengage the half-nut from the leadscrew, as shown in **Figure 55**.
6. Connect the lathe to power, then with one hand poised over the feed lever, start the spindle rotation.

**Note:** The direction of the carriage reverses when the spindle direction reverses.

7. When required, push down on the feed lever to disengage the carriage from the leadscrew and stop its movement.

		Lever	9	5	1	1
		a	28	28	28	42
		b	60	60	60	60
		c	120	120	120	120
		Feed	0.0047	0.0063	0.0078	0.008

**Figure 56.** Model G4000 feed rate chart.



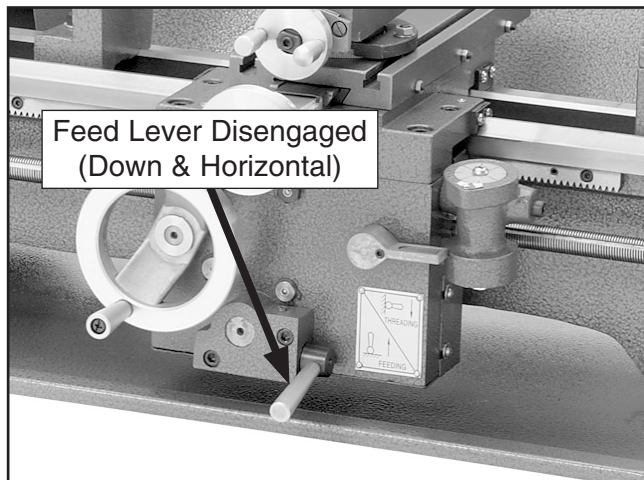
# Threading Controls

The purpose of this subsection is to orient you with the controls used when threading and how to use the threading dial.

If you are unfamiliar with threading on a lathe, we strongly recommend that you read books, review industry trade magazines, or get formal training before beginning any threading projects.

## Feed Lever

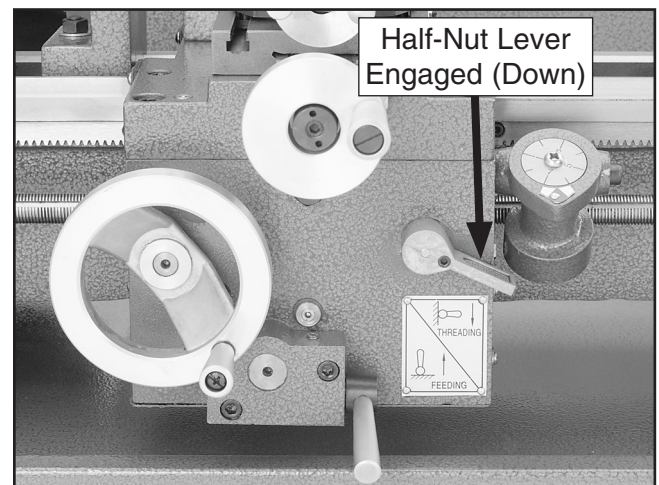
The feed lever must be in the disengaged (down and horizontal) for threading operations or the half-nut will not engage with the leadscrew (see **Figure 57**).



**Figure 57.** The feed lever in the disengaged position.

## Half-Nut Lever

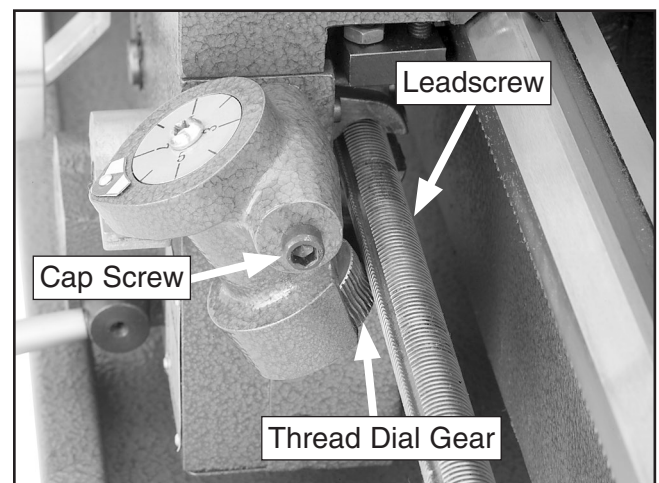
The half-nut lever engages the carriage with the leadscrew which moves the cutting tool along the length of the workpiece (see **Figure 58**).



**Figure 58.** Half-nut lever engaged (down) for threading operations.

## Thread Dial & Chart

The numbers on the thread dial are used with the thread dial chart to show when to engage the half-nut during inch threading. The thread dial gear must be engaged with the leadscrew for this to work. Loosen the cap screw that secures the thread dial, then pivot it so that the dial gear meshes with the leadscrew, as shown in **Figure 59**.




**Figure 59.** Thread dial gear engaged with the leadscrew.



To use the thread dial chart (see **Figure 60**), find the TPI (threads per inch) on the chart that you want to cut, then reference the dial number to the right of it. The dial numbers indicate when to engage the half-nut for a specific thread pitch.

**Note:** *The thread dial chart can also be found on the front of the change gear door.*

 <b>THREAD DIAL</b>		
T. P. I.		DIAL
8	10	1 – 8
12	14	
16	18	
20	22	
24	26	
26	30	
36	36	
40	44	
46	48	
52	56	
9	11	1, 3 5, 7
13	19	
23		
$9\frac{1}{2}$	$11\frac{1}{2}$	2, 6

**Figure 60.** Thread dial chart.

For example, to cut a TPI of 11, engage the half-nut when the thread dial points to the 1, 3, 5, or 7. To cut a TPI of 24, engage the half-nut on any number between 1 and 8.

To maintain accuracy and consistency, engage the half-nut on the same thread dial number for each pass. Failure to start on the same number each time may lead to cutting off the thread made in the previous pass.

**Note:** *The thread dial is not used when cutting metric threads. Leave the half-nut engaged from the beginning until the threads are complete.*

## ***NOTICE***

**DO NOT** engage the half-nut when the spindle speed is over 300 RPM. Otherwise, damage to the leadscrew or carriage components could occur.




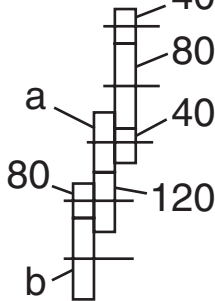
# Understanding Threading Charts


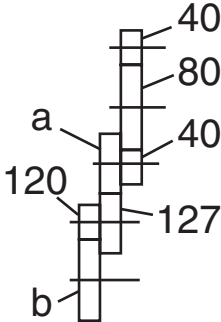
The threading charts illustrated in **Figure 61** show the various feed rate lever and change gear configurations for the inch and metric threading operations that your lathe can perform.

The top chart is for inch threading. Find the TPI for your operation in the columns under the top row of numbers from 1 to 9. This top row is the setting for the feed rate lever. The correct "a" and "b" gears to use are shown in the two left columns, and the configuration of these gears is illustrated to the left of that. The "c" gears will always be the 80T and 120T gears.

For example, for a inch thread pitch of 11, the feed rate lever is set to 5, and the 80T gear is in the outside "c" position and is meshed with the 60T "a" gear and the 30T "b" gear.

The bottom metric threading chart is arranged with the thread pitch selection in the bottom row, the feed rate lever setting in the top row, and the "a" and "b" change gear selection in the middle rows.

		0.002"—0.003" of backlash										
<div><div>n/1"</div><div></div></div>	<div><div></div></div>	<div><div><div></div><div>Lever</div></div><div><div>a</div><div>b</div></div></div>	1	2	3	4	5	6	7	8	9	
		60	30	8	9	9.5	10	11	11.5	12	13	14
		30	30	16	18	19	20	22	23	24	26	28
		30	60	32	36	38	40	44	46	48	52	56

<div><div>mm</div><div></div></div>	<div><div></div></div>	Lever	7	1	1	4	7	1	1	1	7	1	1
		a	30	28	30	30	30	30	30	42	60	60	60
		b	60	60	60	45	30	36	30	36	30	36	30
			0.5	0.7	0.75	0.8	1	1.25	1.5	1.75	2	2.5	3

**Figure 61.** Model G4000 threading charts.





# SECTION 5: ACCESSORIES

## H8257—Primrose Armor Plate with Moly-D Machine and Way Oil 1 Quart

This superior machine and way lubricant prevents stick slip and chatter due to anti-friction capabilities resulting in greater precision machining capabilities. Provides the thinnest oil film possible while effectively providing needed lubrication and rust/corrosion protection. Adhesive/cohesive components are added for vertical surfaces. Resists squeeze out, running, dripping and non-gumming.

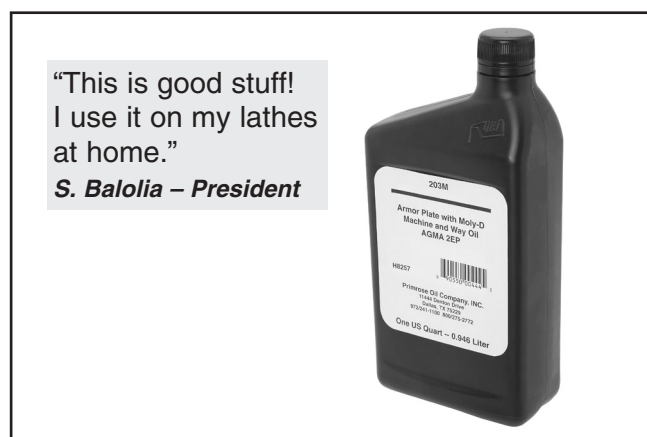


Figure 62. Primrose Armor Plate Lubricant.

## G1075—52-PC. Clamping Kit

All the blocks, bolts, nuts, and hold-downs are case hardened. This clamping kit includes: 24 studs, 6 step block pairs, 6 T-nuts, 5 flange nuts, 4 coupling nuts, and 6 end hold-downs. The rack can be bolted to the wall or side of the machine for easy access. Features 1/2" T-Nuts & 3/8" bolts.

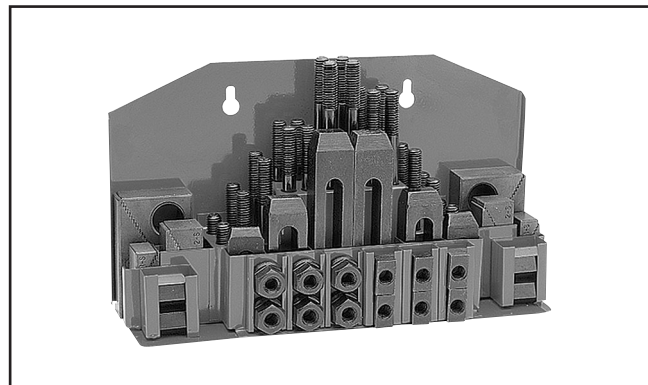


Figure 63. G1075 52-PC. Clamping Kit.

**Call 1-800-523-4777 To Order**

## H5868—20 Pc. Lathe Tool Kit

Get started with this practical lathe kit that includes the following handy essentials: one each of a 5" straight, left, and right turning tool holder with 1/4" x 2 1/2" M2 HSS tool bit; 6 3/4" boring bar, holder, 1/4" square x 2 1/2" M2 HSS tool bit, and 1/8" hex wrench; 4 1/2" straight shank cut-off tool holder with 3/32" x 1/2" HSS cut-off blade; knurling tool holder with fitted knurls, 7" heavy-duty machinist's scribe; T-slot cleaner; 6" spring divider; 1/2" straight and bent lathe dogs; 3/32" x 4 square head center punch; 6" steel rule.

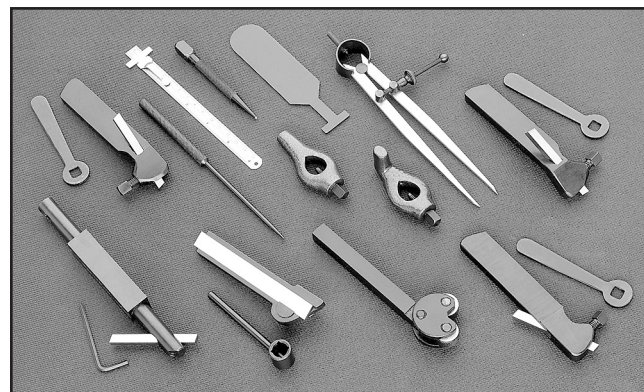


Figure 64. H5868 20 Pc. Lathe Tool Kit.

## H7724—60" Birch Workbench w/Drawers

When organized storage is every bit as important as a stable work surface, this workbench is just what you need. Includes six drawers with ball bearing slides and two lower compartments. The end vise also includes two bench dogs. Specifications: 2 3/4" top edge thickness; 60"W x 20"D x 34"H; 148 lbs. approximate shipping weight.



Figure 65. H7724 60" Birch Workbench with Drawers.



**G9610—Test Indicator**

.03" Range/.001" Resolution

**G9611—Test Indicator**

.008" Range/.0001" Resolution

**G9612—Test Indicator**

.030" Range/.0005" Resolution

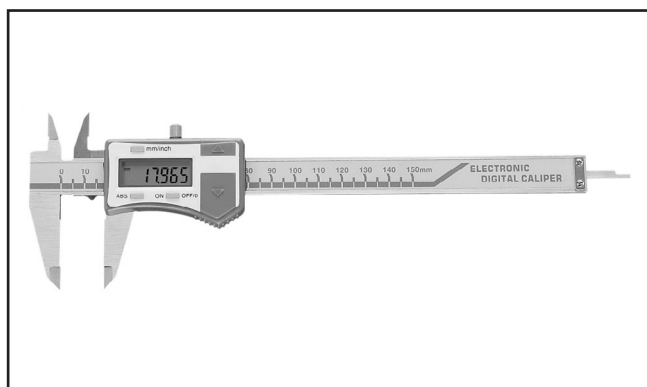
These test indicators have an easy to read dial and a pivoting stylus that moves at right angles to the dial face.



**Figure 66.** Test Indicator.

**H7975—Digital Caliper w/ABS 6"****H7976—Digital Caliper w/ABS 8"**

This Digital Caliper features absolute and relative measurements, hardened stainless steel construction, inch/metric conversion, lock knob, zero reset, data part and battery life indicator. Inch/metric resolution is 0.005mm/0.0002". Comes in a fitted foam-lined plastic case and includes a spare battery.



**Figure 67.** H7975/H7976 Digital Caliper w/ABS.

**T10118—Mini Digital Readout Kit**

Here's the slickest setup for managing the depth of cut with your tailstock! Just set up, touch off and zero out! You're going to know the exact position of the tool. Both the scale display and remote display come with a 0.0005" (five ten-thousandths of an inch) resolution, inch or millimeter display, zero keys and ON/OFF keys. The scale has an 8" range and its display features ABS or INC mode as well as a Hold key. Both displays read independently of each other, too! You'll be able to see your depth at a glance with the large, 1/2" character remote display. The 6' data cable is long enough to mount the remote display in almost any convenient location.



**Figure 68.** T10118 Mini Digital Readout Kit

**Call 1-800-523-4777 To Order**



### **G1069—MT#2 Live Center Set**

A super blend of quality and convenience, this live center set offers seven interchangeable tips. High-quality needle bearings prolong tool life and special tool steel body and tips are precision ground. Supplied in wooden box.



**Figure 69.** G1069 Live Center Set.

### **G9318—MT#2 Tailstock Turret**

This precision Tailstock Turret will save you time and money. With six tool sockets, you can quickly change from one machining operation to the next within seconds!

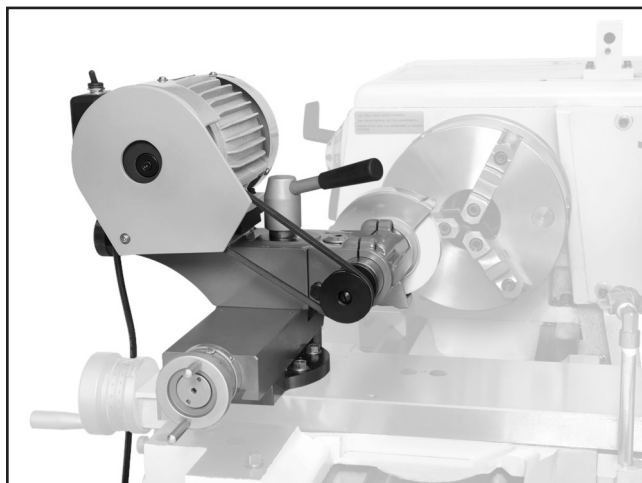


**Figure 70.** G9318 MT#2 Tailstock Turret.

**Call 1-800-523-4777 To Order**

### **G0688—Tool Post Grinder**

This tool post grinder has what it takes to make your project to spec and look good, too! The heavy support casting is loaded with a precision spindle that will provide spectacular finishes on even the toughest jobs. Comes supplied with one external grinding wheel, one internal grinding wheel, and balanced mandrel pulleys and belts for each wheel.



**Figure 71.** G0688 Tool Post Grinder.

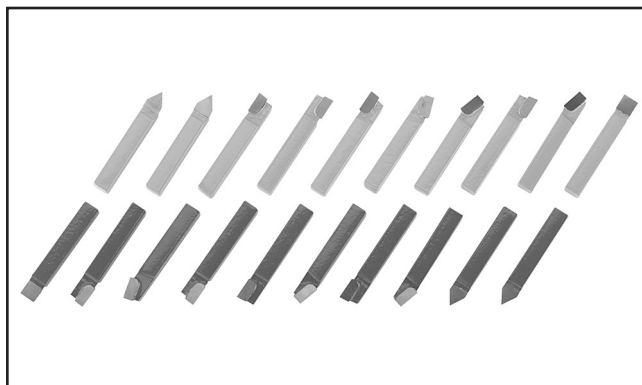
### **20-Pc. Carbide Tipped Tool Bit Sets**

**G9775— $\frac{1}{4}$ "**

**G9776— $\frac{3}{8}$ "**

**G9777— $\frac{1}{2}$ "**

An exceptional value for carbide lathe tool bits! Twenty piece sets offer tremendous savings over bits sold individually. Includes ten C-2 grade bits and ten C-6 grade bits for cutting steel and alloys.



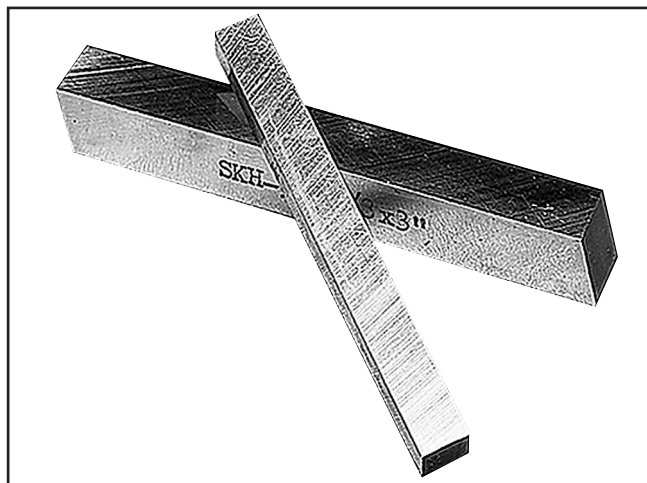
**Figure 72.** 20-Pc. Carbide Tipped Tool Bit Sets.





### H2670—HSS Square Tool Bits

Our ground tool bits are M-2 HSS, making them some of the most durable tool bits around. Make your own specialized cutters in any shape using a silicon carbide grinding wheel (G8235-37) on your grinder.



**Figure 73.** H2670 HSS Square Tool Bits.

### H2972—Cut Off Holder with Blade

#### H4268— $\frac{3}{32}$ " x $\frac{5}{8}$ " x 5" Replacement Blade

Small enough to fit most 4-way turret tool posts, but rugged enough to handle the job, this cut-off tool holder is a must. Comes with a wrench and cut-off tool bit. Uses  $\frac{3}{32}$ " x  $\frac{5}{8}$ " x 5" tool bits. Shank measures  $\frac{1}{2}$ " x  $\frac{1}{4}$ " x 3".



**Figure 74.** H2972 Cut Off Holder with Blade.

### Glance 7-Pc. Insert Turning Tool Sets

#### H5680— $\frac{5}{16}$ "

#### H5682— $\frac{1}{2}$ "

#### H5682—Carbide Inserts Package of 10

Here's a precision set for precision turning. These tools have been machined to exacting specifications and feature rugged tool steel bodies with black oxide finish. They all use the same carbide inserts that are indexable to use all four faces. Supplied in a fitted case.



**Figure 75.** Glance 7-Pc. Insert Turning Tool Sets.

### H5936—2 Pc. Knurling Tool Set

This 2 piece set includes a  $\frac{1}{2}$ " x 4" Single Knurling Toolholder and a  $\frac{1}{2}$ " x  $4\frac{1}{2}$ " Double Knurling Toolholder with Pivoting Head. Both have a black oxide finish.



**Figure 76.** H5936 2 Pc. Knurling Tool Set.

**Call 1-800-523-4777 To Order**



# SECTION 6: MAINTENANCE

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## Schedule

---

For optimum performance from your machine, follow this maintenance schedule and refer to any specific instructions given in this section.

**Note:** *This maintenance schedule is based on average daily usage. Adjust the maintenance schedule to match your usage to keep your lathe running smoothly and to protect your investment.*

### Daily Check:

- Loose mounting bolts.
- Damaged or worn belts.
- Worn or damaged wires.
- Any other unsafe condition.

### Every 6–8 Hours of Operation:

- Clean the machine.
- Daily lubrication procedures.

## Cleaning & Protecting

---

Cleaning the Model G4000 is relatively easy. Vacuum excess metal chips, then wipe off built-up grime. Protect the unpainted metal surfaces with regular applications of products such as Model H8257 Primrose Armor Plate with Moly-D Machine and Way Oil (refer to **ACCESSORIES** on **Page 42**).

## Lubrication

---

Your lathe has numerous metal-to-metal moving parts that require proper lubrication to help ensure efficient and long-lasting operation.

Other than the lubrication points covered in this section, all other bearings are internally lubricated and sealed at the factory. Simply leave them alone unless they need to be replaced.

**DISCONNECT THE LATHE FROM POWER BEFORE PERFORMING LUBRICATION!**

Make copies of **Pages 47–48** and check off the correct boxes in the chart of **Figure 81** to keep track of the daily lubrication procedures. Follow the same sequence of lubrication each day to help ensure all locations are lubricated.

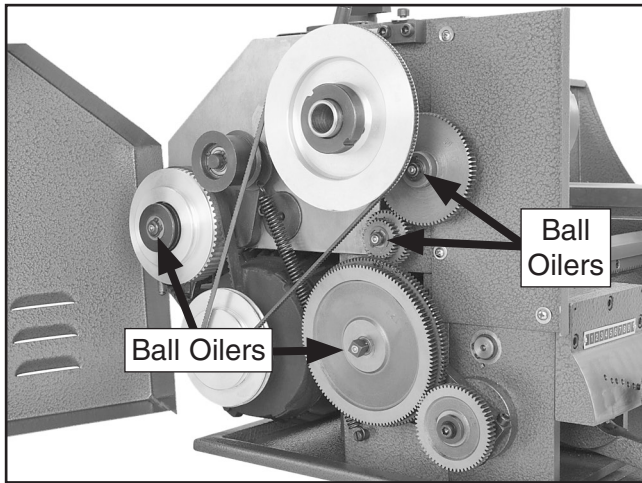
For ball oilers, wipe them clean, then depress the ball with the tip of the oil bottle filled with ISO 68 oil (or equivalent) and squirt once. For other components, thoroughly clean them with a shop rag and mineral spirits, then use a clean rag or brush to apply a thin coat of lubricant (we recommend a good quality way oil).

## NOTICE

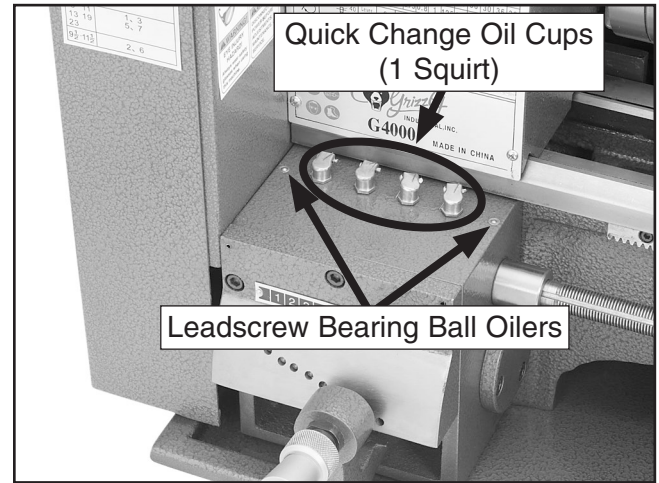
**When lubricating the ball oilers inside the change gear cover, DO NOT allow any lubricant to contact the belts or pulleys. If lubricant does get on these parts, thoroughly clean the pulleys and replace the belts with new ones before continuing operations.**



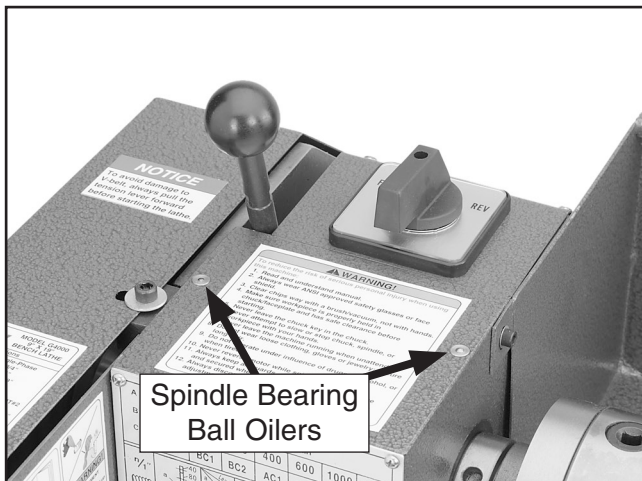




**Figure 77.** Ball oilers inside the change gear cover.



**Figure 79.** Leadscrew bearing ball oilers and quick change gear oil cups.



**Figure 78.** Spindle bearing ball oilers.



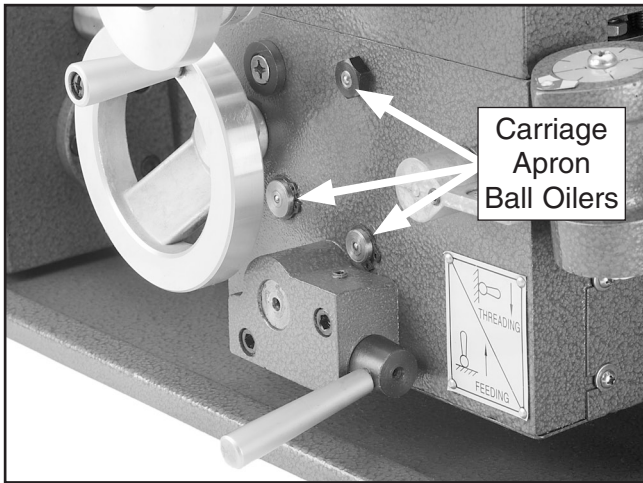
**Figure 80.** Carriage handwheel ball oiler.

## Model G4000 Daily Lubrication Chart

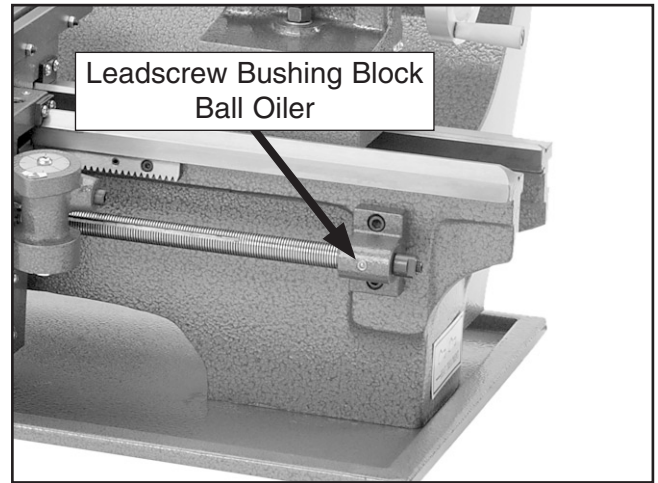
Machine Area	Lubri- cant	Figure No.	No. of Fittngs	Days						
				Mon	Tue	Wed	Thu	Fri	Sat	Sun
Change Gears	ISO 68 Oil	77	4							
Spindle Bearings	ISO 68 Oil	78	2							
Leadscrew Bearings	ISO 68 Oil	79	2							
Quick Change Gears	ISO 68 Oil	79	4							
Carriage Handwheel	ISO 68 Oil	80	1							
Apron	ISO 68 Oil	82	3							
Tailstock	ISO 68 Oil	83	1							
Leadscrew Bushing Block	ISO 68 Oil	84	1							
Rack	Way Oil	85	Length							
Leadscrew Threads	Way Oil	85	Length							
Bedways	Way Oil	85	Length							

**Figure 81.** Daily lubrication chart.

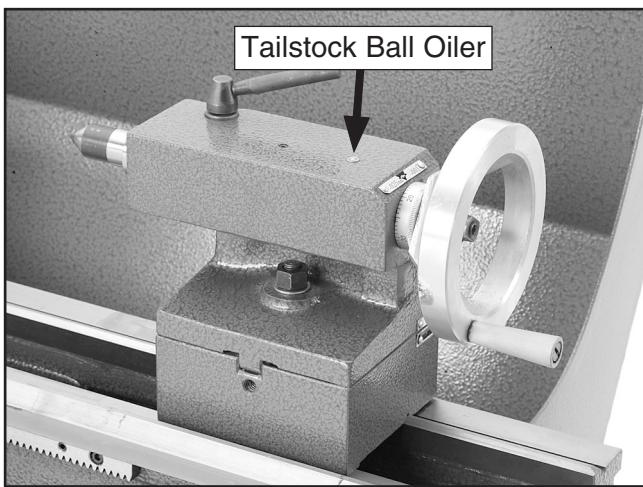




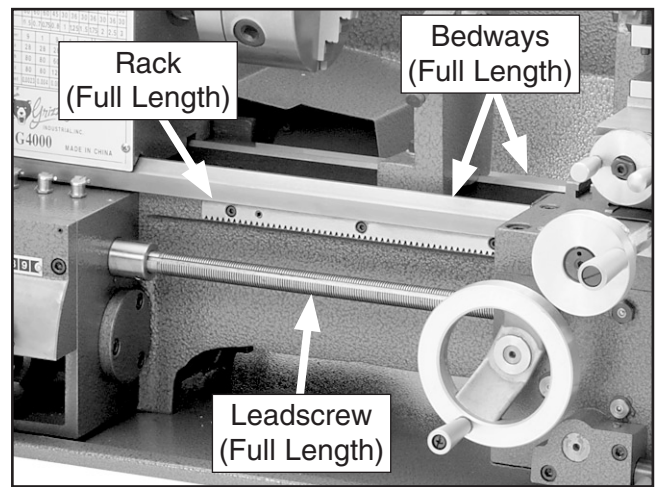
**Figure 82.** Carriage apron ball oilers.



**Figure 84.** Leadscrew bushing block ball oiler.



**Figure 83.** Tailstock ball oiler.



**Figure 85.** Rack, leadscrew and bedways.

## ***NOTICE***

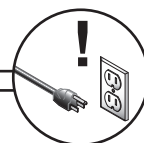
Failure to follow reasonable lubrication practices as instructed in this manual for your lathe could lead to premature failure of your lathe and will void the warranty.



# SECTION 7: SERVICE

Review the troubleshooting and procedures in this section to fix or adjust your machine if a problem develops. If you need replacement parts or you are unsure of your repair skills, then feel free to call our Technical Support at (570) 546-9663.

## Troubleshooting



### Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or a breaker trips.	<ol style="list-style-type: none"> <li>1. Power supply switched OFF or at fault.</li> <li>2. Plug/receptacle at fault/wired wrong.</li> <li>3. Motor connection wired wrong.</li> <li>4. Wall circuit breaker tripped.</li> <li>5. Wiring open/has high resistance.</li> <li>6. Spindle switch at fault.</li> <li>7. Start capacitor at fault.</li> <li>8. Centrifugal switch at fault.</li> <li>9. Motor at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure power supply is on/has correct voltage.</li> <li>2. Test for good contacts; correct the wiring.</li> <li>3. Correct motor wiring connections (<b>Page 55</b>).</li> <li>4. Ensure circuit size is correct/replace weak breaker.</li> <li>5. Check/fix broken, disconnected, or corroded wires.</li> <li>6. Replace switch.</li> <li>7. Test/replace if faulty.</li> <li>8. Adjust/replace centrifugal switch.</li> <li>9. Test/repair/replace.</li> </ol>
Machine stalls or is underpowered.	<ol style="list-style-type: none"> <li>1. Feed rate/cutting speed too fast.</li> <li>2. Wrong workpiece material.</li> <li>3. Belt(s) slipping.</li> <li>4. Motor wired incorrectly.</li> <li>5. Plug/receptacle at fault.</li> <li>6. Pulley slipping on shaft.</li> <li>7. Motor bearings at fault.</li> <li>8. Machine undersized for task.</li> <li>9. Motor overheated.</li> <li>10. Spindle rotation switch at fault.</li> <li>11. Run capacitor at fault.</li> <li>12. Motor at fault.</li> <li>13. Centrifugal switch at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease feed rate/cutting speed.</li> <li>2. Use correct type/size of metal.</li> <li>3. Tension/replace belt(s); ensure pulleys are aligned.</li> <li>4. Wire motor correctly (<b>Page 55</b>).</li> <li>5. Test for good contacts/correct wiring.</li> <li>6. Replace loose pulley/shaft.</li> <li>7. Test/repair/replace.</li> <li>8. Use sharp tools at correct angle; reduce feed rate/depth of cut; use cutting fluid if possible.</li> <li>9. Clean motor, let cool, and reduce workload.</li> <li>10. Test/replace switch.</li> <li>11. Test/repair/replace.</li> <li>12. Test/repair/replace.</li> <li>13. Adjust/replace centrifugal switch if available.</li> </ol>
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> <li>1. Workpiece not held firmly in chuck/faceplate.</li> <li>2. Motor or component loose.</li> <li>3. Spindle belt worn or loose.</li> <li>4. Pulley loose.</li> <li>5. Incorrectly mounted to workbench.</li> <li>6. Motor fan rubbing on fan cover.</li> <li>7. Bit chattering.</li> <li>8. Workpiece or chuck at fault.</li> <li>9. Motor bearings at fault.</li> <li>10. Centrifugal switch.</li> <li>11. Quick change gears at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Correctly secure workpiece in chuck/faceplate.</li> <li>2. Inspect/replace damaged bolts/nuts, and re-tighten with thread locking fluid.</li> <li>3. Inspect/replace belts.</li> <li>4. Realign/replace shaft, pulley, set screw, and key.</li> <li>5. Adjust feet, shim, or tighten mounting hardware.</li> <li>6. Fix/replace fan cover; replace loose/damaged fan.</li> <li>7. Replace/sharpen bit; index bit to workpiece; use correct feed rate and spindle speed.</li> <li>8. Center workpiece in chuck or face plate; replace defective chuck.</li> <li>9. Test by rotating shaft, replace if grinding.</li> <li>10. Replace switch.</li> <li>11. Replace bad gear(s)/bearing(s).</li> </ol>





## Operations

Symptom	Possible Cause	Possible Solution
Bad surface finish.	<ol style="list-style-type: none"> <li>1. Incorrect spindle speed or feed rate.</li> <li>2. Dull tool or poor tool selection.</li> <li>3. Too much play in gibs.</li> <li>4. Tool too high.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust for proper spindle speed and feed rate (<b>Page 31</b>).</li> <li>2. Use sharp tools; use correct tool for the operation.</li> <li>3. Adjust gibs (<b>Page 51</b>).</li> <li>4. Lower tool position.</li> </ol>
Cannot remove tapered tool from tailstock quill.	<ol style="list-style-type: none"> <li>1. Quill not retracted all the way back into the tailstock.</li> <li>2. Debris/oil not removed from tapered mating surfaces before inserting into quill.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rotate the quill handwheel until the tapered tool is forced out of quill.</li> <li>2. Always make sure that tapered mating surfaces are clean before inserting.</li> </ol>
Gear(s) will not line up and mesh.	<ol style="list-style-type: none"> <li>1. Gear(s) not aligned.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rotate spindle by hand until gear(s) falls into place.</li> </ol>
Cutting tool or machine components vibrate excessively during cutting.	<ol style="list-style-type: none"> <li>1. Tool holder not tight enough.</li> <li>2. Cutting tool too far out from holder; lack of support.</li> <li>3. Too much play in gibs.</li> <li>4. Cutting tool is dull.</li> <li>5. Incorrect spindle speed or feed rate.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check for debris, clean, and re-tighten.</li> <li>2. Re-install cutting tool with no more than <math>\frac{1}{3}</math> of total length is sticking out of tool holder.</li> <li>3. Adjust gibs (<b>Page 51</b>).</li> <li>4. Sharpen/replace.</li> <li>5. Adjust for proper spindle speed and feed rate (<b>Page 31</b>).</li> </ol>
Cross/compound slide or carriage feed has sloppy operation.	<ol style="list-style-type: none"> <li>1. Too much play in gibs.</li> <li>2. Handwheel(s) loose.</li> <li>3. Too much leadscrew backlash (cross slide only).</li> <li>4. Leadscrew mechanism worn or out of adjustment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust gibs (<b>Page 51</b>).</li> <li>2. Tighten handwheel fasteners.</li> <li>3. Adjust leadscrew backlash (<b>Page 52</b>).</li> <li>4. Tighten any loose fasteners on leadscrew mechanisms; check for excessive wear/replace if necessary.</li> </ol>
Cross/compound slide or carriage feed hard to move.	<ol style="list-style-type: none"> <li>1. Gibs are loaded up with chips/grime.</li> <li>2. Gibs are too tight.</li> <li>3. Leadscrew backlash setting too tight (cross slide only).</li> <li>4. Bedways are dirty/dry.</li> <li>5. Gearing is at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove gibs, clean ways, lubricate, and properly adjust gibs (<b>Page 51</b>).</li> <li>2. Adjust gibs (<b>Page 51</b>).</li> <li>3. Properly adjust cross slide leadscrew backlash (<b>Page 52</b>).</li> <li>4. Clean and lubricate bedways.</li> <li>5. Inspect/replace gearing.</li> </ol>
Inaccurate turning results from one end of workpiece to the other.	<ol style="list-style-type: none"> <li>1. Tailstock not properly aligned with headstock.</li> </ol>	<ol style="list-style-type: none"> <li>1. Properly align tailstock with headstock (<b>Page 26</b>).</li> </ol>
Chuck jaws will not move or do not move easily.	<ol style="list-style-type: none"> <li>1. Chips/debris lodged in jaws.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove jaws, clean and lubricate jaws, scroll-gear threads, and chuck, then replace jaws.</li> </ol>
Tailstock quill will not feed out of tailstock.	<ol style="list-style-type: none"> <li>1. Quill lock is tightened down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn quill lock counterclockwise to loosen.</li> </ol>



# Adjusting Gibs

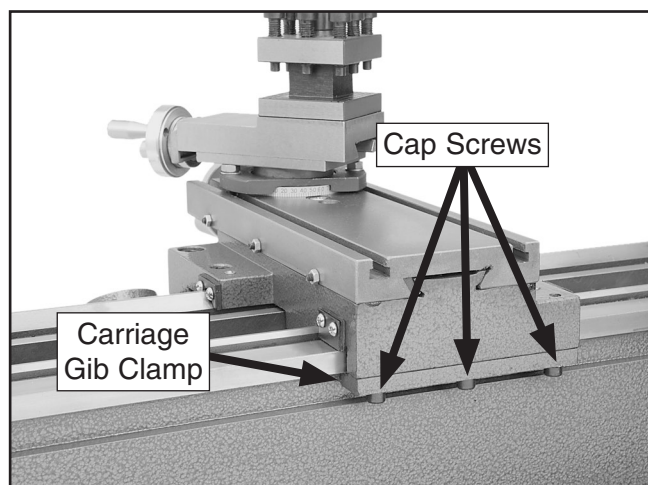
The gibs that affect the accuracy of the carriage, cross slide, and compound slide movements along their ways can be adjusted. The carriage uses a gib clamp located on the rear of the carriage saddle, and the cross slide and compound slide use a wedge-shaped gib sandwiched between the component base and the way.

The goal of gib adjustment is to remove unnecessary sloppiness without causing the ways to bind. Tight gibs make the movements more accurate, but harder to perform. Loose gibs make the movements sloppy, but easier to perform.

Tools Needed	Qty
Hex Wrench 5mm.....	1

## Carriage Gib Clamp

1. DISCONNECT LATHE FROM POWER!
2. Loosen the three cap screws that secure the gib clamp underneath the rear of the carriage saddle, as shown in **Figure 86**.



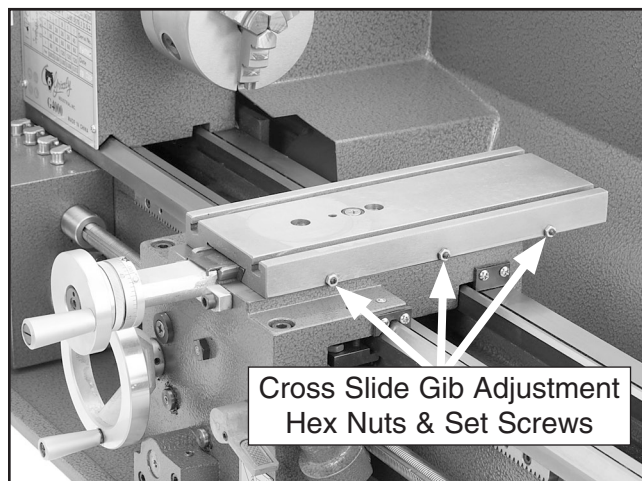
**Figure 86.** Carriage gib clamp cap screws (as viewed from the rear of the carriage).

3. Manually move the carriage back-and-forth to make sure the gib clamp is loose, then tighten each of the cap screws just until you feel resistance.
4. Re-check the carriage movement and loosen or tighten the cap screws equally until you are satisfied with the gib clamp adjustment.

Tools Needed	Qty
Wrench 7mm .....	1
Standard Screwdriver #1 .....	1

## Cross Slide & Compound Slide Gibs

1. DISCONNECT LATHE FROM POWER!
2. Loosen the three hex nuts on the side of the device (see **Figures 87–88**).



**Figure 87.** Cross slide gib adjustment hex nuts and set screws.

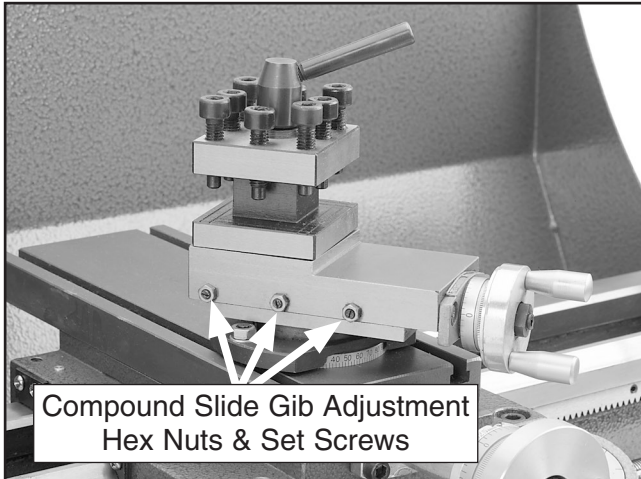
## NOTICE

Excessively loose gibs may cause poor workpiece finishes, and may cause undue wear of sliding surfaces and ways. Excessively tight gibs may cause premature wear of the sliding devices.





# Compound Slide Backlash



**Figure 88.** Compound slide gib adjustment hex nuts and set screws.

3. Loosen the set screws and move the device back-and-forth to make sure the gibs are loose, then tighten the set screws just until you feel resistance.
4. Move the device back-and-forth and loosen or tighten the set screws equally until you are satisfied with the gib adjustment, then, without moving the set screws, re-tighten the hex nuts to secure the setting.

Backlash is the amount the handwheel turns in one direction before the slide begins to move.

**Note:** When adjusting backlash, keep in mind the goal is to remove excess backlash without binding the movement of the slide. Overtightening will cause excessive wear to the cross slide leadscrew and nut.

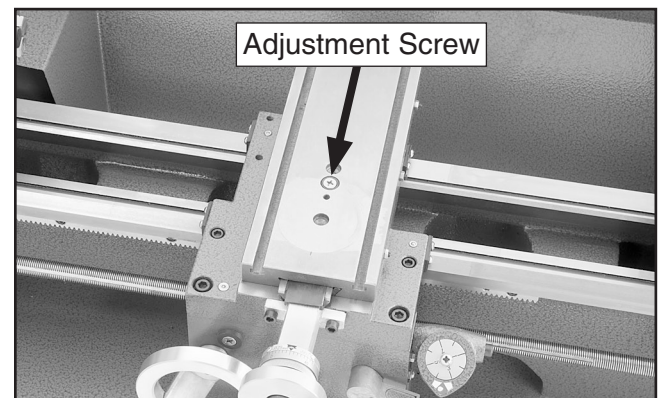
## Tools Needed

Qty

Wrench 10mm .....	1
Phillips Screwdriver #2 .....	1

## To adjust the cross slide backlash:

1. DISCONNECT LATHE FROM POWER!
2. Remove the compound slide from the cross slide, then loosen or tighten the adjustment screw shown in **Figure 89** until you are satisfied with the amount of backlash.



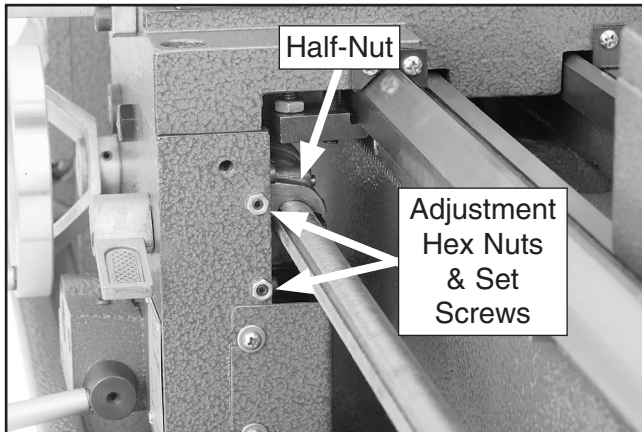
**Figure 89.** Cross slide backlash adjustment screw.



# Adjusting Half-Nut

The leadscrew half-nut should engage the leadscrew firmly without tilting from side-to-side during operation. With normal wear over an extended period of use, adjustment of the half-nut guide bar may be necessary. The goal of adjusting the half-nut guide bar is to remove excessive play so that the half-nut easily and firmly engages the leadscrew, but will not tilt from side-to-side when engaged with the leadscrew for threading operations.

Tools Needed	Qty
Hex Wrench 5mm.....	1
Wrench 7mm .....	1
Standard Screwdriver #1 .....	1



**Figure 90.** Half-nut adjustment components.

## To adjust the half-nut guide bar:

1. DISCONNECT LATHE FROM POWER!
2. Remove the thread dial assembly.
3. Loosen the two adjustment hex nuts shown in **Figure 90**, then adjust the set screws in small increments.
4. Engage the half-nut with the leadscrew and rock the carriage back-and-forth with the handwheel.
5. Repeat **Steps 3–4** until you are satisfied with the adjustment, then without moving the set screws, re-tighten the hex nuts and re-install the thread dial assembly.



# SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Study this section carefully. If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine.

## WARNING
















### Wiring Safety Instructions

- SHOCK HAZARD.** Working on wiring that is connected to a power source is extremely dangerous. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. Disconnect the power from the machine before servicing electrical components!
- QUALIFIED ELECTRICIAN.** Due to the inherent hazards of electricity, only a qualified electrician should perform wiring tasks on this machine. If you are not a qualified electrician, get help from one before attempting any kind of wiring job.
- WIRE CONNECTIONS.** All connections must be tight to prevent wires from loosening during machine operation. Double-check all wires disconnected or connected during any wiring task to ensure tight connections.
- WIRE/COMPONENT DAMAGE.** Damaged wires or components increase the risk of serious personal injury, fire, or machine damage. If you notice that any wires or components are damaged while performing a wiring task, replace those wires or components before completing the task.
- MODIFICATIONS.** Using aftermarket parts or modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire.
- MOTOR WIRING.** The motor wiring shown in these diagrams is current at the time of printing, but it may not match your machine. Always use the wiring diagram inside the motor junction box.
- CAPACITORS.** Some capacitors store an electrical charge for up to five minutes after being disconnected from the power source. To avoid being shocked, wait at least this long before working on capacitors.
- CIRCUIT REQUIREMENTS.** You MUST follow the requirements on **Page 9** when connecting your machine to a power source.
- EXPERIENCING DIFFICULTIES.** If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (570) 546-9663.

#### NOTICE

The photos and diagrams included in this section are best viewed in color. You can view these pages in color at [www.grizzly.com](http://www.grizzly.com).

#### COLOR KEY

BLACK		BLUE		YELLOW		LIGHT BLUE	
WHITE		BROWN		YELLOW GREEN		BLUE WHITE	
GREEN		GRAY		RED ORANGE		TURQUOISE	
RED		ORANGE		RED WHITE			



# Wiring Diagram

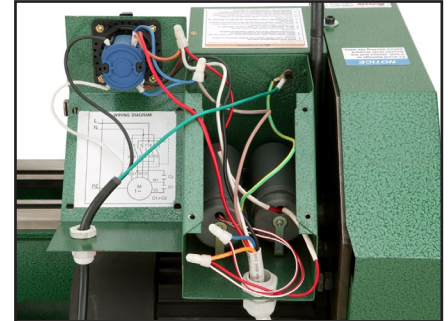
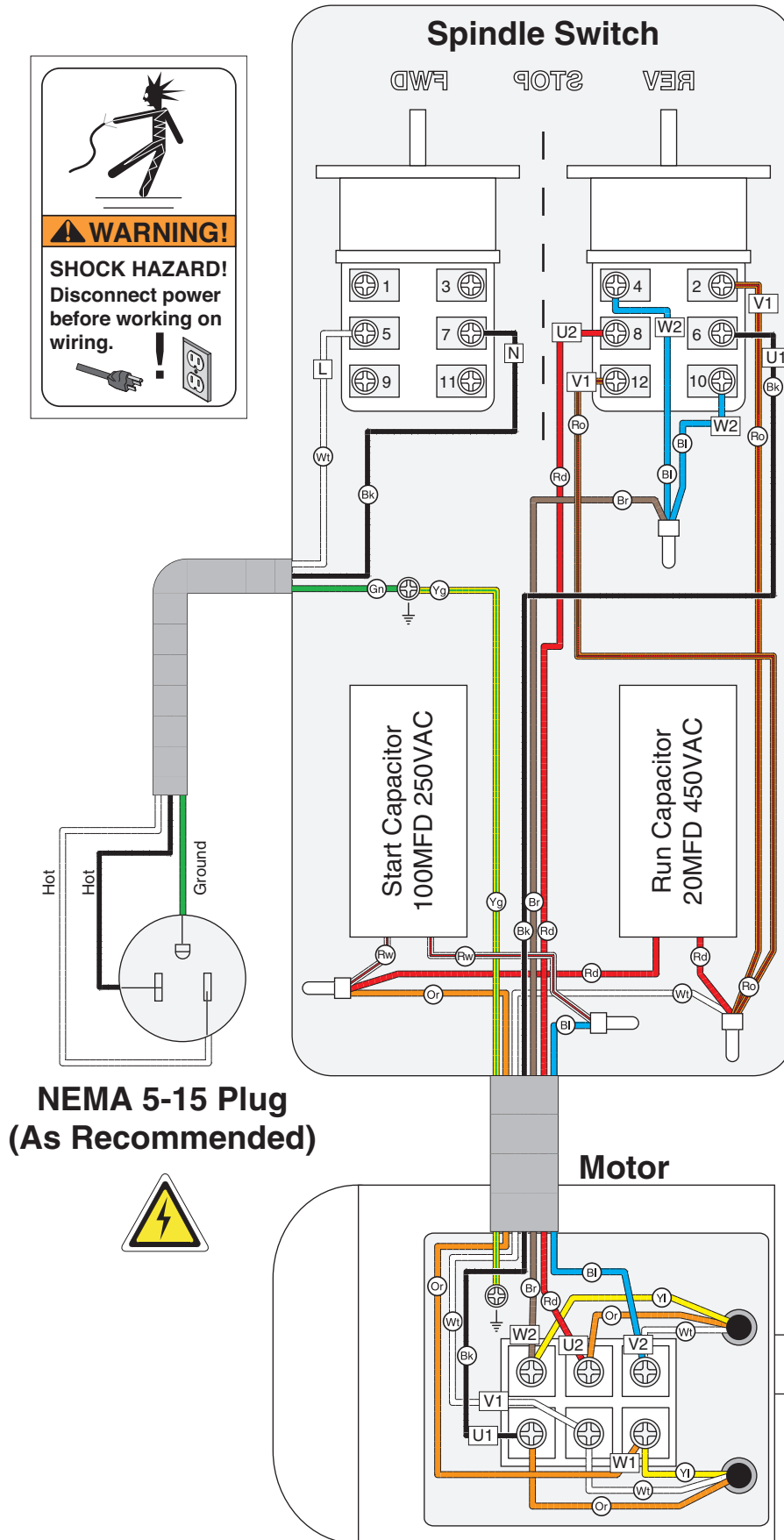
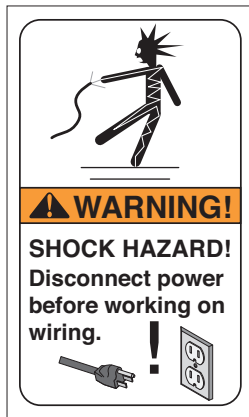


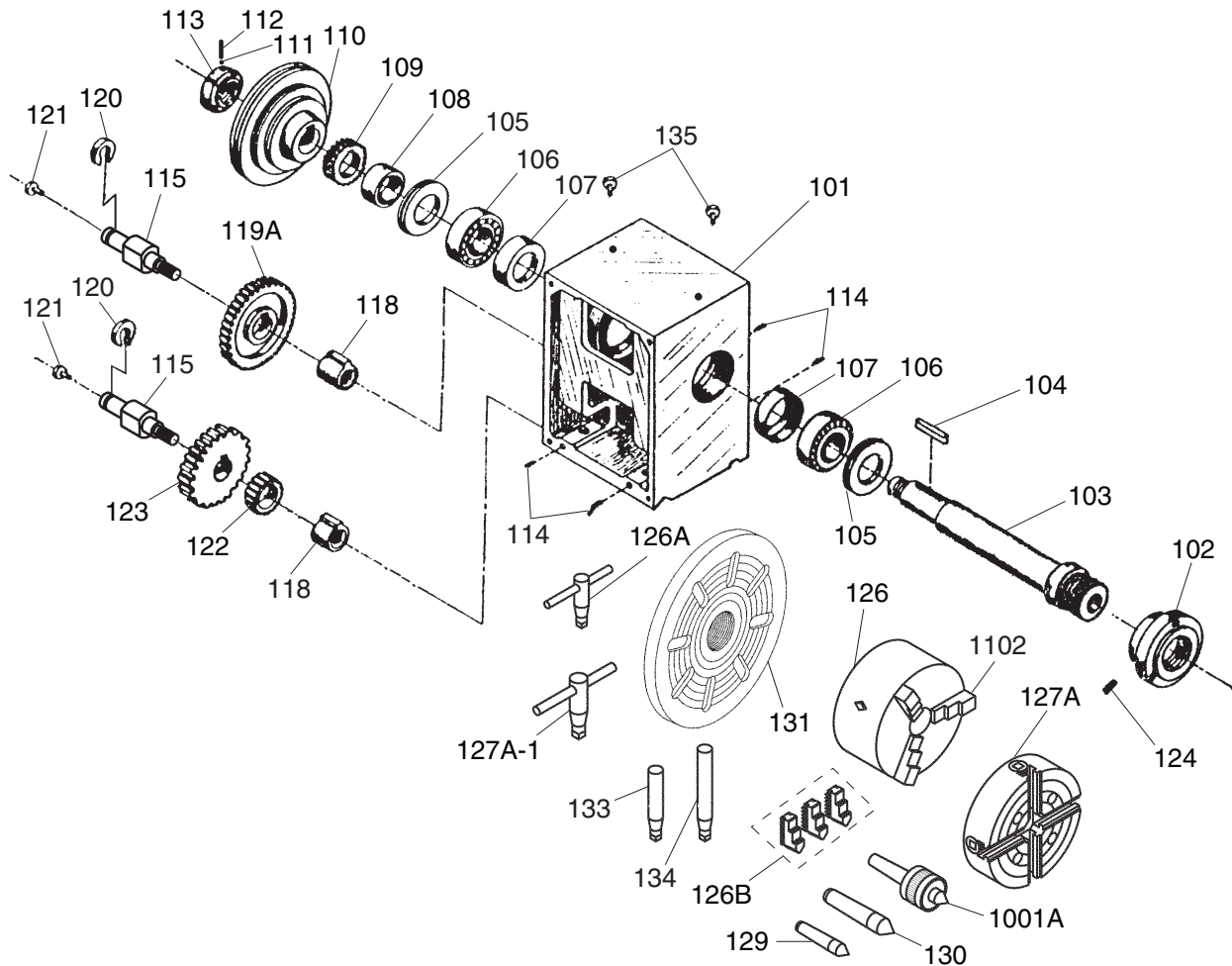
Figure 91. Electrical box wiring.



Figure 92. Motor wiring.

# SECTION 9: PARTS

## Headstock



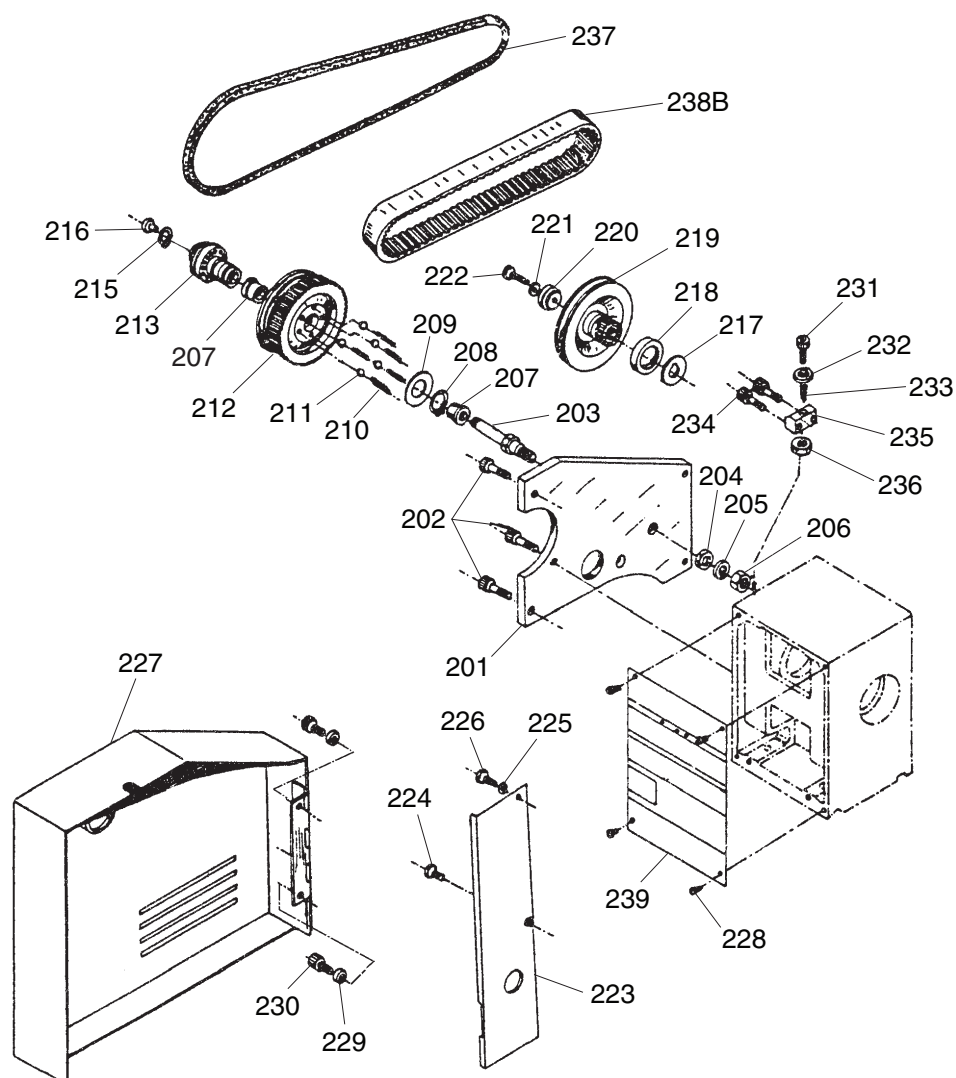
REF	PART #	DESCRIPTION
101	P4000101	HEADSTOCK CASTING
102	P4000102	3-JAW CHUCK BACK PLATE
103	P4000103	SPINDLE
104	P4000104	SPINDLE SHAFT KEY
105	P4000105	GASKET
106	P32007	TAPERED BEARING 32007
107	P4000107	BEARING CAP
108	P4000108	SPACER
109	P4000109	GEAR 40T I.D. 30MM
110	P4000110	SPINDLE PULLEY
111	P4000111	STEEL BALL
112	PSS20M	SET SCREW M8-1.25 X 8
113	P4000113	THREADED LOCK COLLAR
114	PSS26M	SET SCREW M5-.8 X 6
115	P4000115	SHAFT
118	P4000405	KEYED BUSHING
119A	P4000119A	GEAR 80T, METAL
120	P4000120	SPECIAL WASHER

REF	PART #	DESCRIPTION
121	P40001020	OIL PORT 6MM
122	P4000122	GEAR 40T I.D. 14MM
123	P4000123	GEAR 28T
124	PSS03M	SET SCREW M6-1 X 8
126	P4000126	3-JAW CHUCK 4"
126A	P4000126A	3-JAW CHUCK KEY
126B	P4000126B	3-JAW REVERSE JAWS 3-PC SET
127A	P9972Z1117	4-JAW CHUCK 6-1/4"
127A-1	P4000127A-1	CHUCK KEY 4 JAW
129	P4000129	DEAD CENTER MT#2
130	P4000130	DEAD CENTER MT#3
131	P4000131	FACE PLATE 7-1/2"
133	P4000133	CHUCK BAR SHORT
134	P4000134	CHUCK BAR LONG
135	P4000135	OIL PORT 8MM
1001A	P40001001A	LIVE CENTER MT#2
1102	P40001102	3-JAW STANDARD JAWS 3PC SET





# Drive Belt

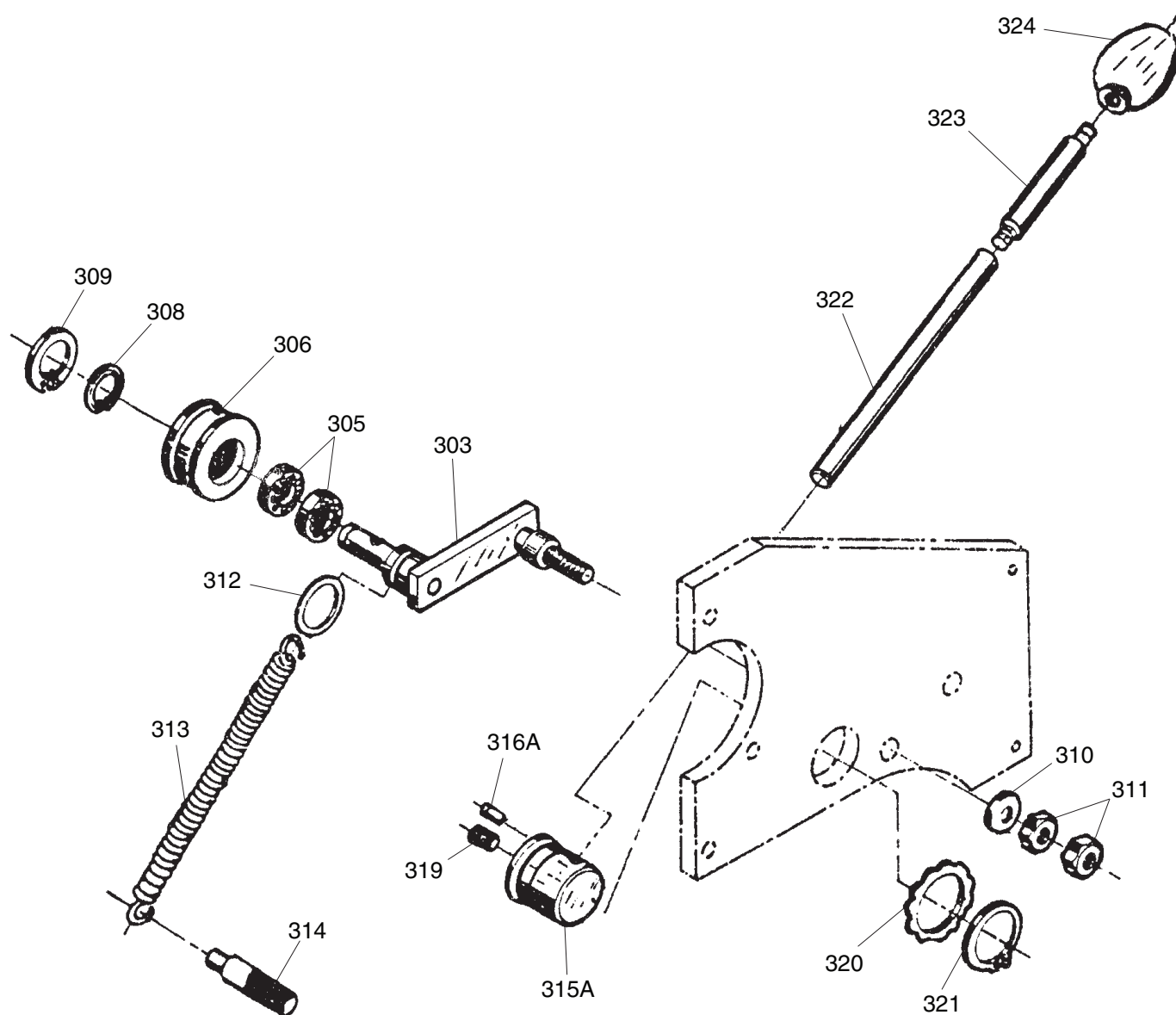


REF	PART #	DESCRIPTION
201	P4000201	BRACKET PLATE
202	PSB15M	CAP SCREW M5-.8 X 20
203	P4000203	IDLER PULLEY SHAFT
204	PW04M	FLAT WASHER 10MM
205	PLW06M	LOCK WASHER 10MM
206	PN02M	HEX NUT M10-1.5
207	P4000207	BUSHING
208	PR11M	EXT RETAINING RING 25MM
209	P4000209	SPECIAL WASHER
210	P4000210	COMPRESSION SPRING
211	P4000211	BALL
212	P4000212	IDLER PULLEY
213	P4000213	CLUTCH HUB
215	PR03M	EXT RETAINING RING 12MM
216	P4000216	OIL PORT
217	P4000217A	SPACER - CHINA MOTOR
218	P4000218A	COLLAR - CHINA MOTOR
219	P4000219A	MOTOR PULLEY - CHINA MOTOR
220	P4000220	SPECIAL WASHER

REF	PART #	DESCRIPTION
221	PLW03M	LOCK WASHER 6MM
222	PSB06M	CAP SCREW M6-1 X 25
223	P4000223	COVER PLATE
224	PSB33M	CAP SCREW M5-.8 X 12
225	PW02M	FLAT WASHER 5MM
226	PSB03M	CAP SCREW M5-.8 X 8
227	P4000227	CHANGE GEAR COVER W/HINGE
228	PSB17M	CAP SCREW M4-.7 X 10
229	PW03M	FLAT WASHER 6MM
230	PSB04M	CAP SCREW M6-1 X 10
231	PSB06M	CAP SCREW M6-1 X 25
232	PW03M	FLAT WASHER 6MM
233	P4000233	COMPRESSION SPRING
234	PSB02M	CAP SCREW M6-1 X 20
235	P4000235	CLAMP BLOCK
236	PN01M	HEX NUT M6-1
237	P4000237	V-BELT M5 X 710 (QTY 1)
238B	P4000238B	TOOTH BELT 170 X L050 CHINA
239	P4000239	CONFIGURATION PLATE



# Belt Tension Lever

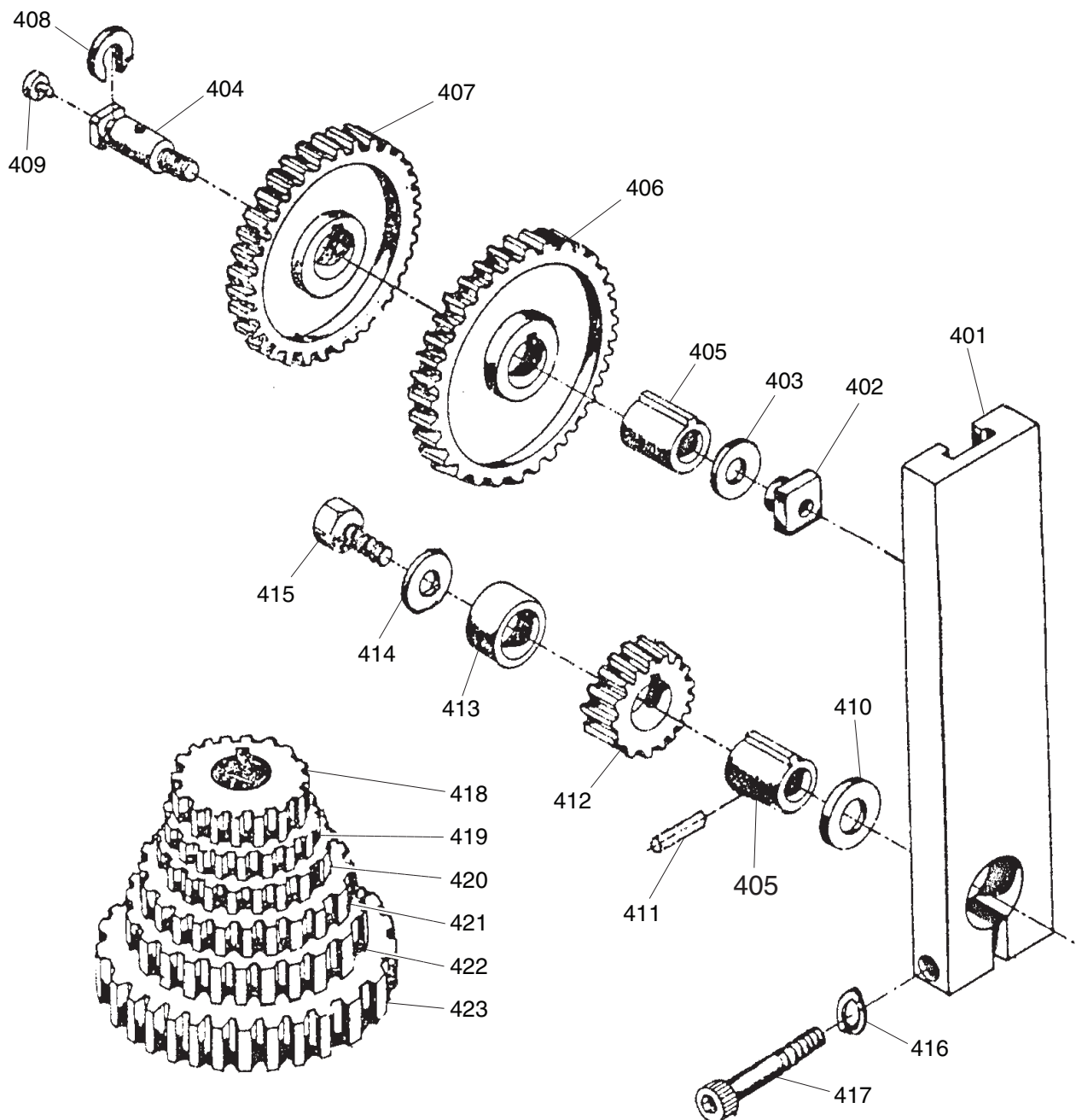


REF	PART #	DESCRIPTION
303	P4000303	LEVER BRACKET
305	P6001ZZ	BALL BEARING 6001ZZ
306	P4000306	ROLLER
308	PR03M	EXT RETAINING RING 12MM
309	PR20M	INT RETAINING RING 28MM
310	PW04M	FLAT WASHER 10MM
311	PN02M	HEX NUT M10-1.5
312	P4000312	SPECIAL WASHER
313	P4000313	TENSION SPRING

REF	PART #	DESCRIPTION
314	P4000314	STUD BOLT
315A	P4000315A	TENSIONING CAM V2.08.07
316A	PSB26M	CAP SCREW M6-1 X 12
319	PSS20M	SET SCREW M8-1.25 X 8
320	P4000320	SPECIAL WASHER
321	PR84M	EXT RETAINING RING 34MM
322	P4000322	BELT TENSION LEVER
323	P4000323	EXTENSION ROD
324	P4000324	KNOB



# Change Gears

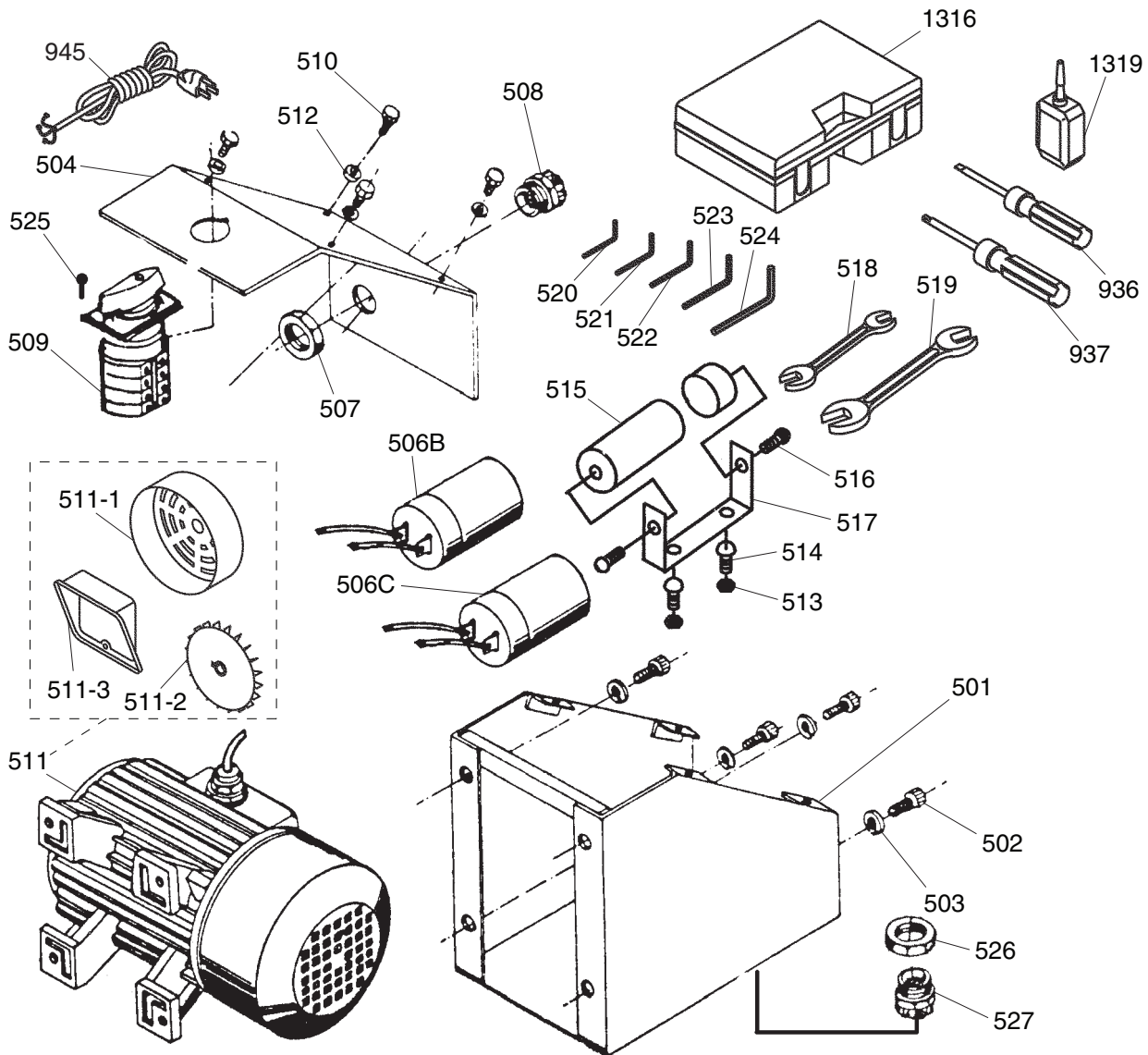


REF	PART #	DESCRIPTION
401	P4000401	BRACKET
402	P4000402	T-NUT M6-1
403	PW03M	FLAT WASHER 6MM
404	P4000404	SHAFT
405	P4000405	KEYED BUSHING
406	P4000406	GEAR 127T
407	P4000407	GEAR 120T
408	P4000408	SPECIAL WASHER
409	P4000409	OIL PORT 6MM
410	PW04M	FLAT WASHER 10MM
411	PRP19M	ROLL PIN 4 X 14
412	P4000412	GEAR 30T

REF	PART #	DESCRIPTION
413	P4000413	SPACER
414	PW03M	FLAT WASHER 6MM
415	PSB04M	CAP SCREW M6-1 X 10
416	PLW03M	LOCK WASHER 6MM
417	PSB48M	CAP SCREW M6-1 X 35
418	P4000418	GEAR 28T
419	P4000419	GEAR 36T
420	P4000420	GEAR 42T
421	P4000421	GEAR 45T
422	P4000422	GEAR 60T
423	P4000423	GEAR 80T



# Electrical & Tools



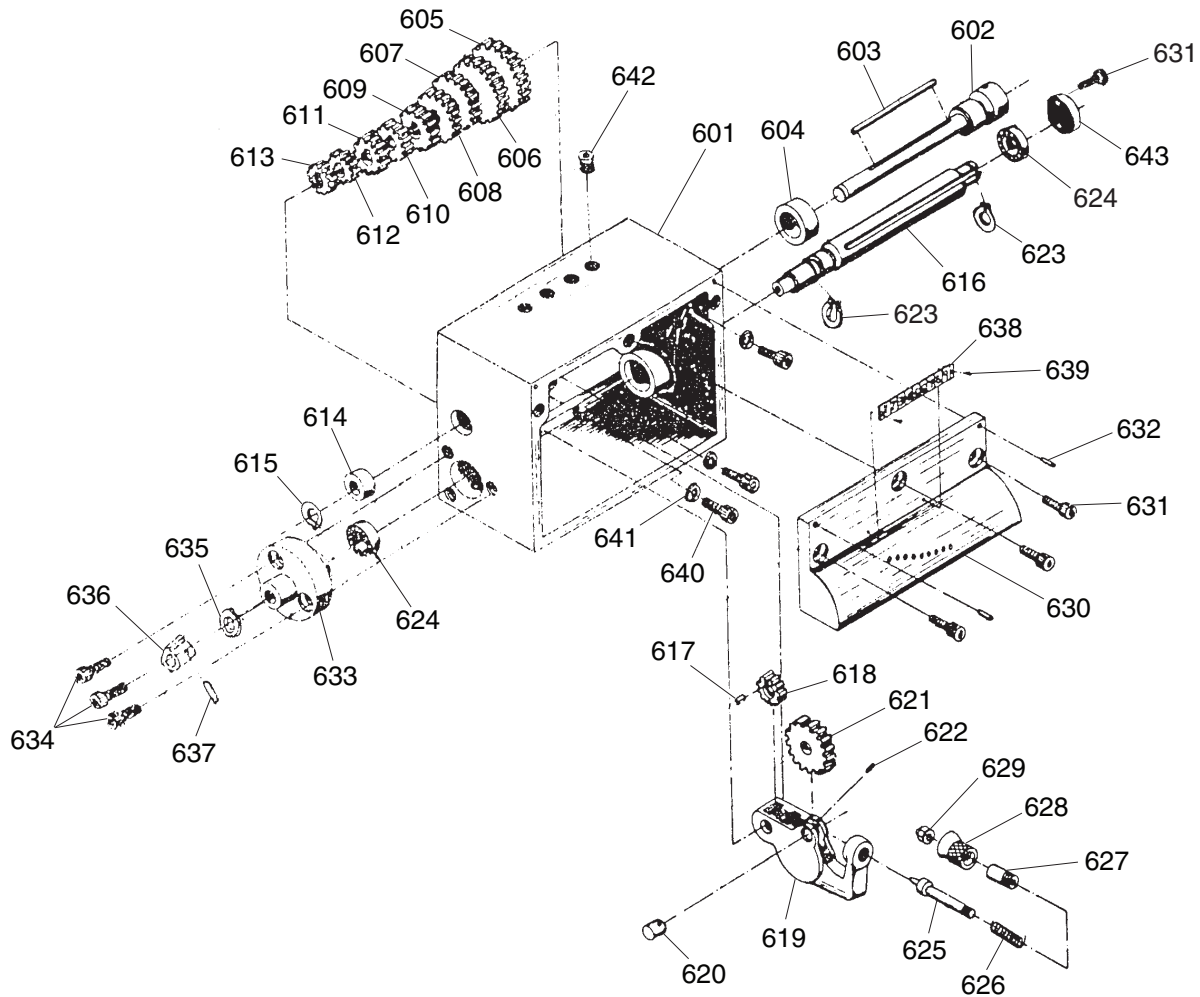
REF	PART #	DESCRIPTION
501	P4000501	ELECTRICAL BOX
502	PSB50M	CAP SCREW M5-.8 X 10
503	PLW03M	LOCK WASHER 6MM
504	P4000504	ELECTRICAL BOX COVER
505	P4000505	CAPACITOR COVER CAP
506B	P4000506B	R CAP. 20M 400V 1-5/8" X 2-7/8"
506C	P4000506C	S CAP. 100M 250V 1-5/8" X 3-1/8"
507	P4000507	STRAIN RELIEF NUT M16-1
508	P4000508	STRAIN RELIEF M16
509	P4000509	SPINDLE SWITCH
510	PS09M	PHLP HD SCR M5-.8 X 10
511	P4000511	MOTOR 3/4HP 110V 60HZ
511-1	P4000511-1	MOTOR FAN COVER
511-2	P4000511-2	MOTOR FAN
511-3	P4000511-3	TERMINAL COVER
512	PLW01M	LOCK WASHER 5MM
513	PN04M	HEX NUT M4-.7
514	PS07M	PHLP HD SCR M4-.7 X 8

REF	PART #	DESCRIPTION
515	P4000515	CAPACITOR COVER
516	PS17M	PHLP HD SCR M4-.7 X 6
517	P4000517	CAPACITOR CLIP
518	PWR810	WRENCH 8/10MM
519	PWR1214	WRENCH 12/14MM
520	PAW01.5M	HEX WRENCH 1.5MM
521	PAW02M	HEX WRENCH 2MM
522	PAW04M	HEX WRENCH 4MM
523	PAW05M	HEX WRENCH 5MM
524	PAW06M	HEX WRENCH 6MM
525	PS56M	PHLP HD SCR M4-.7 X 16
526	P4000526	STRAIN RELIEF NUT M24-1.5
527	P4000527	STRAIN RELIEF M24
936	PSDF2	SCREWDRIVER FLAT #2
937	PSDP2	SCREWDRIVER PHILLIPS #2
945	PWRCRD110L	POWER CORD 16/3/110V
1316	P40001315	TOOL BOX
1319	P40001319	OIL BOTTLE





# Quick Change Gears



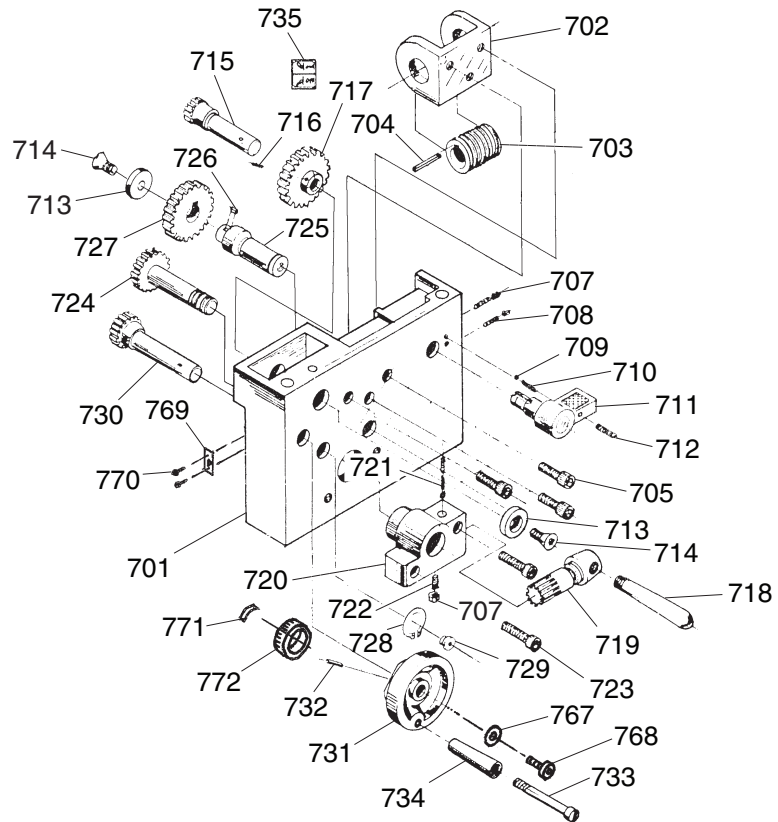
REF	PART #	DESCRIPTION
601	P4000601	GEARBOX CASTING
602	P4000602	SHAFT
603	PK13M	KEY 5 X 5 X 70
604	P4000604	BUSHING
605	P4000605	GEAR 28T
606	P4000606	GEAR 26T
607	P4000607	GEAR 24T
608	P4000608	GEAR 23T
609	P4000609	GEAR 22T
610	P4000610	GEAR 20T
611	P4000611	GEAR 19T
612	P4000612	GEAR 18T
613	P4000613	GEAR 16T
614	P4000614	BUSHING
615	PR06M	EXT RETAINING RING 16MM
616	P4000616	SHAFT
617	PK10M	KEY 5 X 5 X 12
618	P4000618	GEAR 16T
619	P4000619	SHIFT ARM
620	P4000620	SHAFT
621	P4000621	GEAR 36T
622	PSS05M	SET SCREW M5-.8 X 10

REF	PART #	DESCRIPTION
623	PR05M	EXT RETAINING RING 15MM
624	P6202ZZ	BALL BEARING 6202ZZ
625	P4000625	PLUNGER
626	P4000626	COMPRESSION SPRING
627	P4000627	BUSHING
628	P4000628	KNURLED KNOB
629	P4000629	SPECIAL ACORN NUT
630	P4000630	GEARBOX FRONT COVER
631	PSB01M	CAP SCREW M6-1 X 16
632	PRP20M	ROLL PIN 4 X 22
633	P4000633	BRACKET
634	PSB04M	CAP SCREW M6-1 X 10
635	PW04M	FLAT WASHER 10MM
636	P4000636	BUSHING
637	PRP19M	ROLL PIN 4 X 14
638	P4000638	NUMBER PLATE
639	P4000809	RIVET 2 X 5
640	PSB14M	CAP SCREW M8-1.25 X 20
641	PLW04M	LOCK WASHER 8MM
642	P4000642	OIL CUP
643	P4000643	BEARING CAP

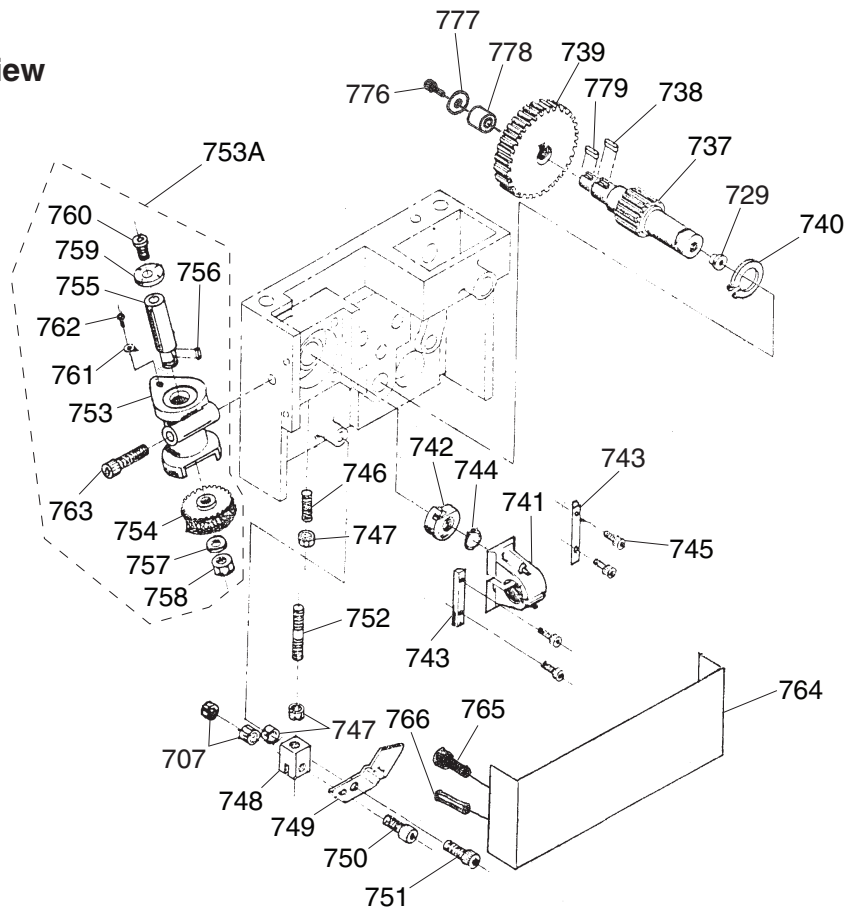


# Apron Breakdown

Front View



Rear View



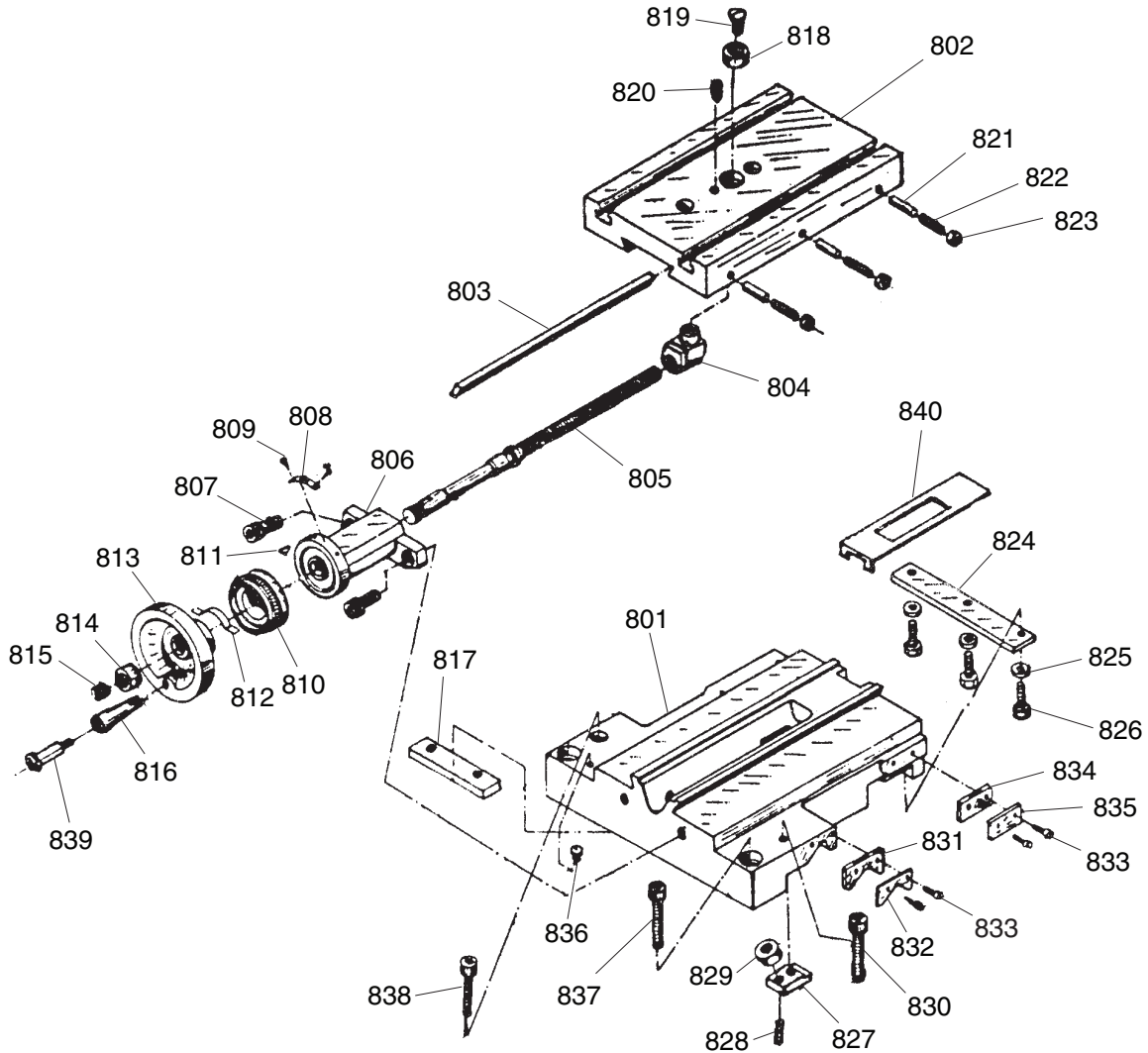
# Apron Parts List

REF	PART #	DESCRIPTION
701	P4000701	APRON CASTING
702	P4000702	BRACKET
703	P4000703	WORM GEAR
704	PK92M	KEY 3 X 3 X 25
705	PSB06M	CAP SCREW M6-1 X 25
707	PN04M	HEX NUT M4-.7
708	PSS22M	SET SCREW M4-.7 X 12
709	P4000709	STEEL BALL
710	P4000710	COMPRESSION SPRING
711	P4000711	HALF-NUT LEVER
712	PSS02M	SET SCREW M6-1 X 6
713	P4000713	SPECIAL WASHER
714	PFH04M	FLAT HD SCR M6-1 X 8
715	P4000715	GEAR SHAFT 12T
716	PRP22M	ROLL PIN 4 X 32
717	P4000717	GEAR 43T
718	P4000718	FEED LEVER
719	P4000719	GEAR SHAFT 13T
720	P4000720	BRACKET
721	P4000721	COMPRESSION SPRING
722	PSS23M	SET SCREW M4-.7 X 10
723	PSB07M	CAP SCREW M6-1 X 30
724	P4000724	GEAR SHAFT 43T
725	P4000725	SHAFT
726	PK05M	KEY 4 X 4 X 10
727	P4000727	GEAR 41T
728	PR02M	EXT RETAINING RING 14MM
729	P4000729	OIL PORT 8MM
730	P4000730	GEAR SHAFT 17T
731	P4000731	HANDWHEEL
732	PRP04M	ROLL PIN 4 X 24
733	P4000733	SPECIAL SCREW
734	P4000734	HANDLE
735	P4000735	LEVER DIRECTION LABEL
737	P4000737	GEAR SHAFT 18T
738	PK05M	KEY 4 X 4 X 10
739	P4000739	GEAR 42T
740	PR03M	EXT RETAINING RING 12MM

REF	PART #	DESCRIPTION
741	P4000741	HALF NUT SAE 16TPI
742	P4000742	LOCKING CAM
743	P4000743	HALF-NUT GUIDE BAR
744	PR39M	EXT RETAINING RING 8MM
745	PSB16M	CAP SCREW M4-.7 X 16
746	PSS24M	SET SCREW M5-.8 X 25
747	PN04M	HEX NUT M4-.7
748	P4000748	CONTROL BLOCK
749	P4000749	JOINT PLATE
750	PSB39M	CAP SCREW M4-.7 X 20
751	PSB24M	CAP SCREW M5-.8 X 16
752	P4000752	THREADED STUD M5-.8
753	P4000753	THREAD DIAL BODY
753A	P4000753A	THREAD DIAL BODY ASSEMBLY
754	P4000754	WORM GEAR 64T
755	P4000755	SHAFT
756	PK39M	KEY 3 X 3 X 10
757	PLW04M	LOCK WASHER 8MM
758	PN03M	HEX NUT M8-1.25
759	P4000759	THREAD DIAL
760	P4000760	SPECIAL SCREW
761	P4000761	POINTER
762	P4000762	RIVET
763	PSB49M	CAP SCREW M6-1 X 60
764	P4000764	APRON REAR COVER
765	PSB33M	CAP SCREW M5-.8 X 12
766	PRP02M	ROLL PIN 3 X 16
767	P4000767	SPECIAL WASHER
768	P4000768	SPECIAL CAP SCREW
769	P4000769	PLATE
770	P4000770	RIVET 2 X 5
771	P4000771	INDEX PLATE
772	P4000772	GRADUATED DIAL
776	PSB50M	CAP SCREW M5-.8 X 10
777	PW02M	FLAT WASHER 5MM
778	P4000778	BUSHING
779	PK03M	KEY 3 X 3 X 8



# Saddle & Cross Slide



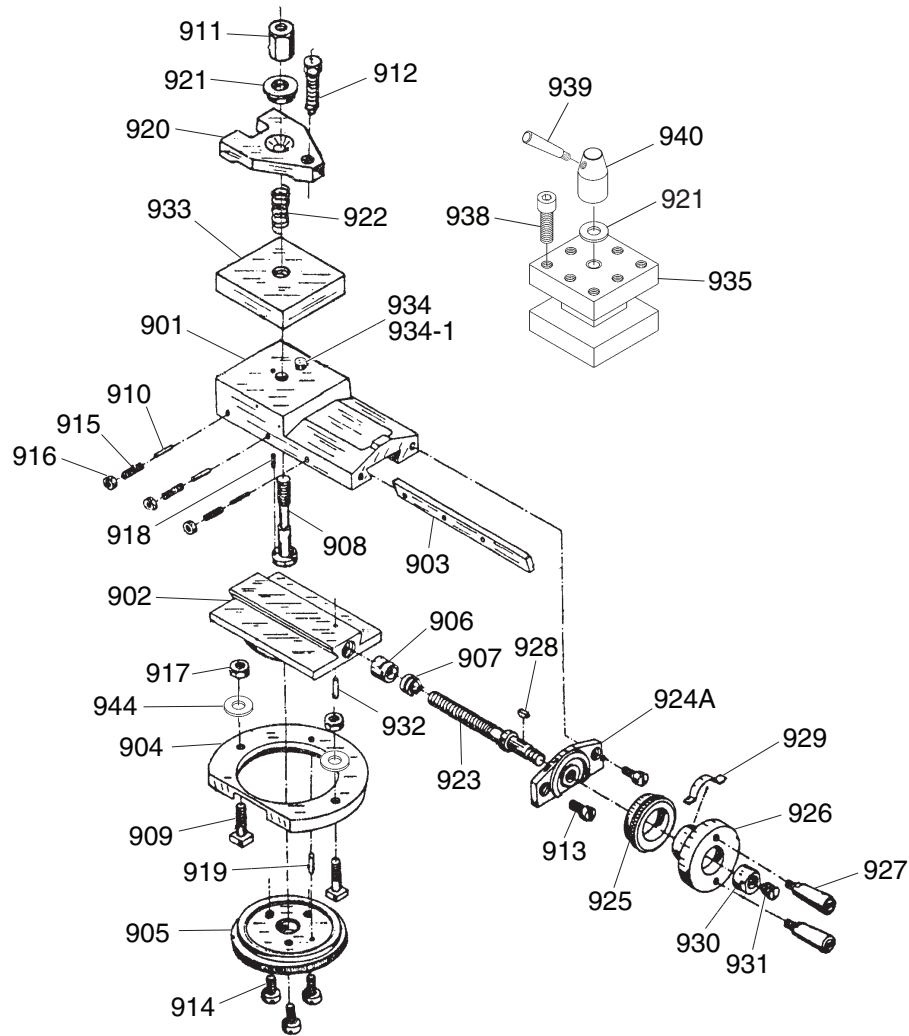
REF	PART #	DESCRIPTION
801	P4000801	SADDLE
802	P4000802	CROSS SLIDE
803	P4000803	CROSS SLIDE GIB
804	P4000804	CROSS SLIDE LEADSCREW NUT
805	P4000805	CROSS SLIDE LEADSCREW
806	P4000806	BRACKET
807	PSB24M	CAP SCREW M5-.8 X 16
808	P4000808	INDEX PLATE
809	P4000809	RIVET 2 X 5
810	P4000810	GRADUATED DIAL
811	P4000811	WOODRUFF KEY
812	P4000812	INDICATOR PLATE
813	P4000813	HANDWHEEL
814	P4000814	SPECIAL HEX NUT
815	PSS17M	SET SCREW M8-1.25 X 6
816	P4000734	HANDLE
817	P4000817	SLIDE BLOCK
818	P4000818	BUSHING
819	PFH02M	FLAT HD SCR M6-1 X 12
820	PSS04M	SET SCREW M6-1 X 12

REF	PART #	DESCRIPTION
821	P4000821	GIB PIN
822	PSS22M	SET SCREW M4-.7 X 12
823	PN04M	HEX NUT M4-.7
824	P4000824	SADDLE GIB CLAMP
825	PW03M	FLAT WASHER 6MM
826	PSB01M	CAP SCREW M6-1 X 16
827	P4000827	CLIP
828	PSS25M	SET SCREW M6-1 X 20
829	PN01M	HEX NUT M6-1
830	PSB06M	CAP SCREW M6-1 X 25
831	P4000831	FRONT WAY WIPER
832	P4000832	FRONT WIPER CLAMP
833	PS17M	PHLP HD SCR M4-.7 X 6
834	P4000834	REAR WAY WIPER
835	P4000835	REAR WIPER CLAMP
836	P4000836	OIL PORT 6MM
837	PSB13M	CAP SCREW M8-1.25 X 30
838	PSB06M	CAP SCREW M6-1 X 25
839	P4000839	SPECIAL SCREW
840	P4000840	CHIP GUARD





# Compound Slide

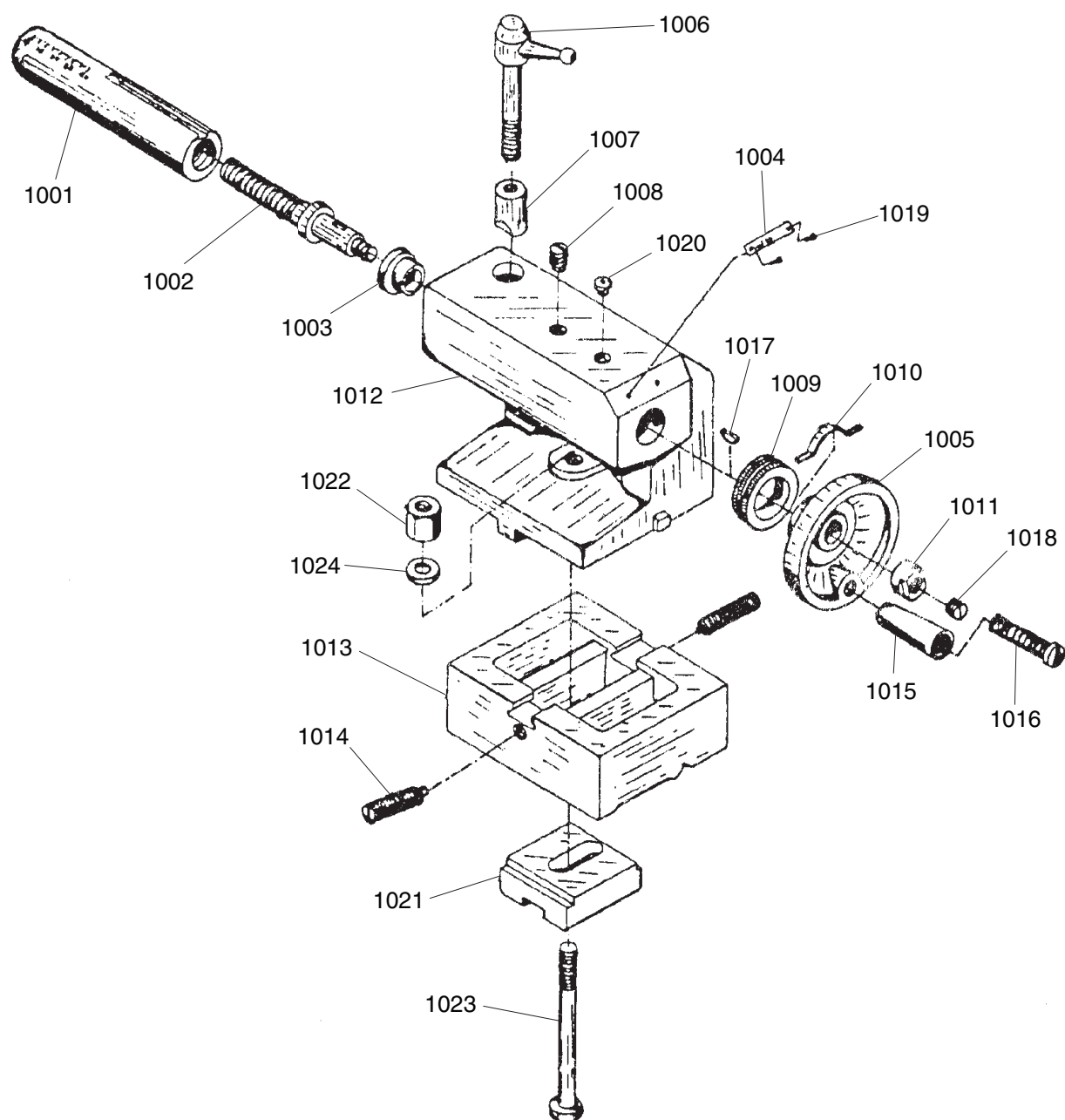


REF	PART #	DESCRIPTION
901	P4000901	COMPOUND SLIDE
902	P4000902	SWIVEL BASE
903	P4000903	COMPOUND SLIDE GIB
904	P4000904	CLAMPING RING
905	P4000905	GRADUATED DIAL
906	P4000906	COMPOUND LEADSCREW NUT
907	P4000907	ADJUSTING SCREW
908	P4000908	TOOL POST STUD
909	P4000909	SPECIAL T-BOLT
910	P4000910	GIB PIN
911	P4000911	TOOL POST NUT
912	PB26M	HEX BOLT M8-1.25 X 30
913	PSB50M	CAP SCREW M5-.8 X 10
914	PFH02M	FLAT HD SCR M6-1 X 12
915	PSS23M	SET SCREW M4-.7 X 10
916	PN04M	HEX NUT M4-.7
917	PN01M	HEX NUT M6-1
918	PRP15M	ROLL PIN 3 X 8
919	PRP37M	ROLL PIN 3 X 14
920	P4000920	C-STYLE TOOL CLAMP

REF	PART #	DESCRIPTION
921	PW01M	FLAT WASHER 8MM
922	P4000922	COMPRESSION SPRING
923	P4000923	COMPOUND SLIDE LEADSCREW
924A	P4000924A	LEADSCREW MOUNT V2.02.07
925	P4000925	GRADUATED DIAL
926	P4000926	HANDWHEEL
927	P4000927	HANDLE
928	P4000928	KEY 3 X 13
929	P4000812	DIAL POINTER
930	P4000930	THREADED COLLAR
931	PSS17M	SET SCREW M8-1.25 X 6
932	PRP61M	ROLL PIN 3 X 12
933	P4000933	C-STYLE TOOL BASE
934	P4000934	TOOL POST PIN
934-1	P4000934-1	PIN SPRING
935	P4000935	4-WAY TOOL REST
938	PSB13M	CAP SCREW M8-1.25 X 30
939	P4000939	LOCK HANDLE
940	P4000940	SPECIAL LOCK NUT
944	PW03M	FLAT WASHER 6MM



# Tailstock

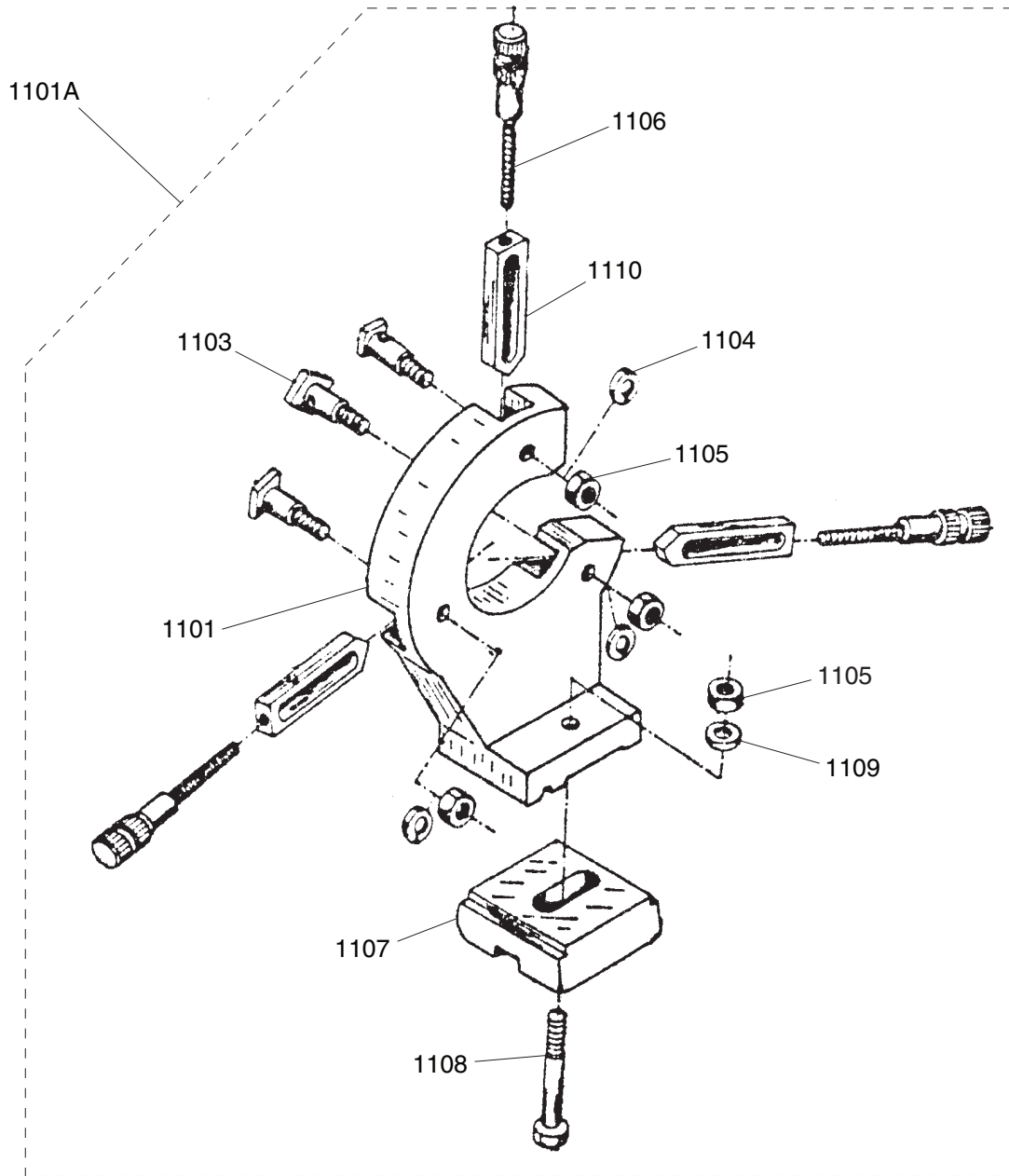


REF	PART #	DESCRIPTION
1001	P40001001	TAILSTOCK QUILL
1002	P40001002	TAILSTOCK LEADSCREW
1003	P40001003	BUSHING
1004	P40001004	OFFSET INDICATOR PLATE
1005	P40001005	HANDWHEEL
1006	P40001006	QUILL LOCK LEVER
1007	P40001007	CLAMP
1008	PSS05M	SET SCREW M5-.8 X 10
1009	P40001009	GRADUATED DIAL
1010	P40001010	POINTER PLATE
1011	P40001011	SPECIAL NUT
1012	P40001012	TAILSTOCK BODY

REF	PART #	DESCRIPTION
1013	P40001013	TAILSTOCK BASE
1014	P40001014	SPECIAL SET SCREW M8-1.25 X 25
1015	P40001015	HANDLE
1016	P40001016	SPECIAL SCREW
1017	P40001017	KEY 3 X 13
1018	PSS20M	SET SCREW M8-1.25 X 8
1019	P40001019	RIVET
1020	P40001020	OIL PORT 6MM
1021	P40001021	CLAMPING PLATE
1022	PN03M	HEX NUT M8-1.25
1023	P40001023	TAILSTOCK CLAMP BOLT
1024	PW01M	FLAT WASHER 8MM



# Steady Rest

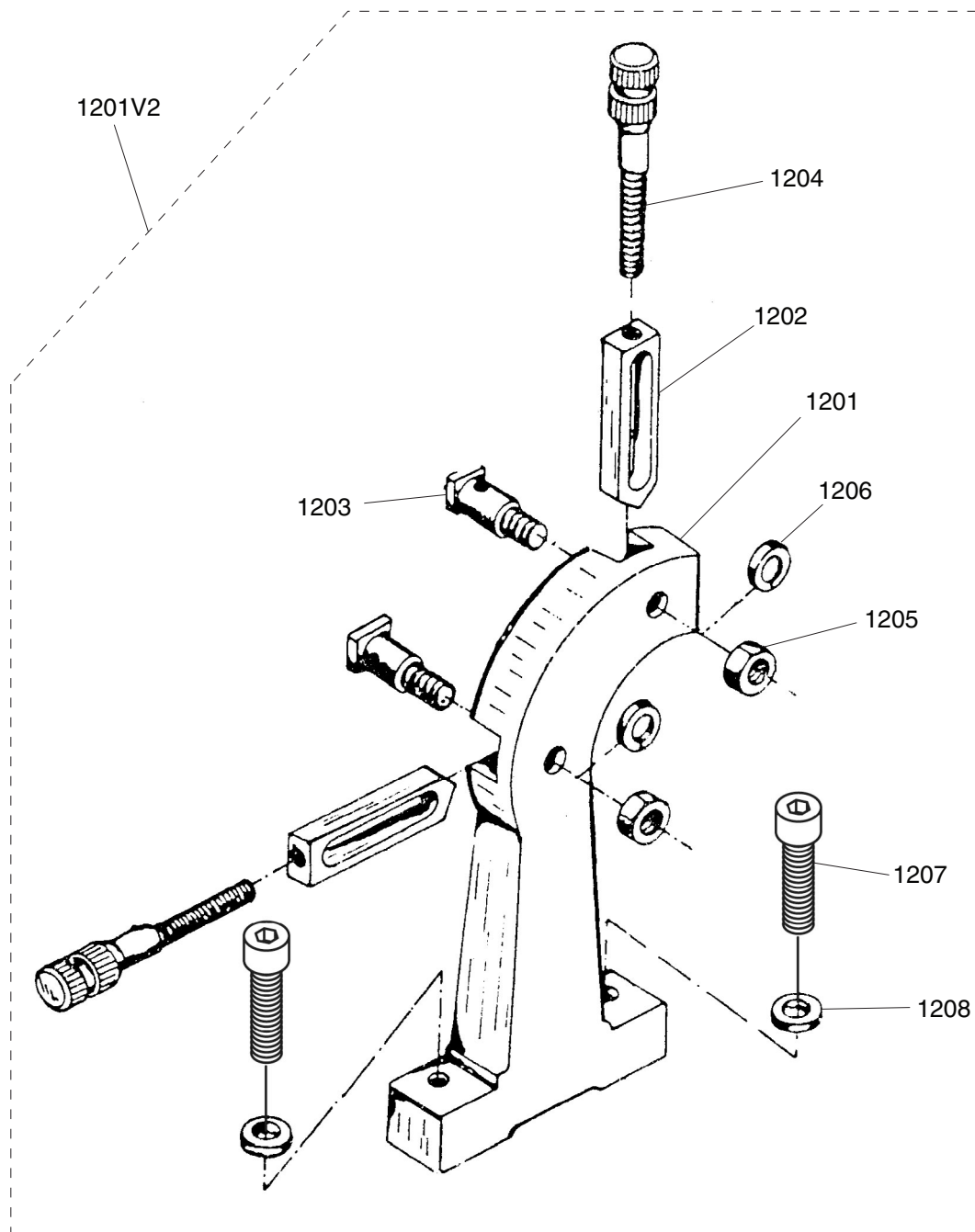


REF	PART #	DESCRIPTION
1101	P40001101	STEADY REST CASTING
1101A	P40001101A	STEADY REST ASSEMBLY
1103	P40001103	SPECIAL SCREW
1104	PLW04M	LOCK WASHER 8MM
1105	PN03M	HEX NUT M8-1.25

REF	PART #	DESCRIPTION
1106	P40001106	ADJUSTING SCREW
1107	P40001107	CLAMPING PLATE
1108	PB28M	HEX BOLT M8-1.25 X 60
1109	PW01M	FLAT WASHER 8MM
1110	P40001110	STEADY REST FINGER



# Follow Rest



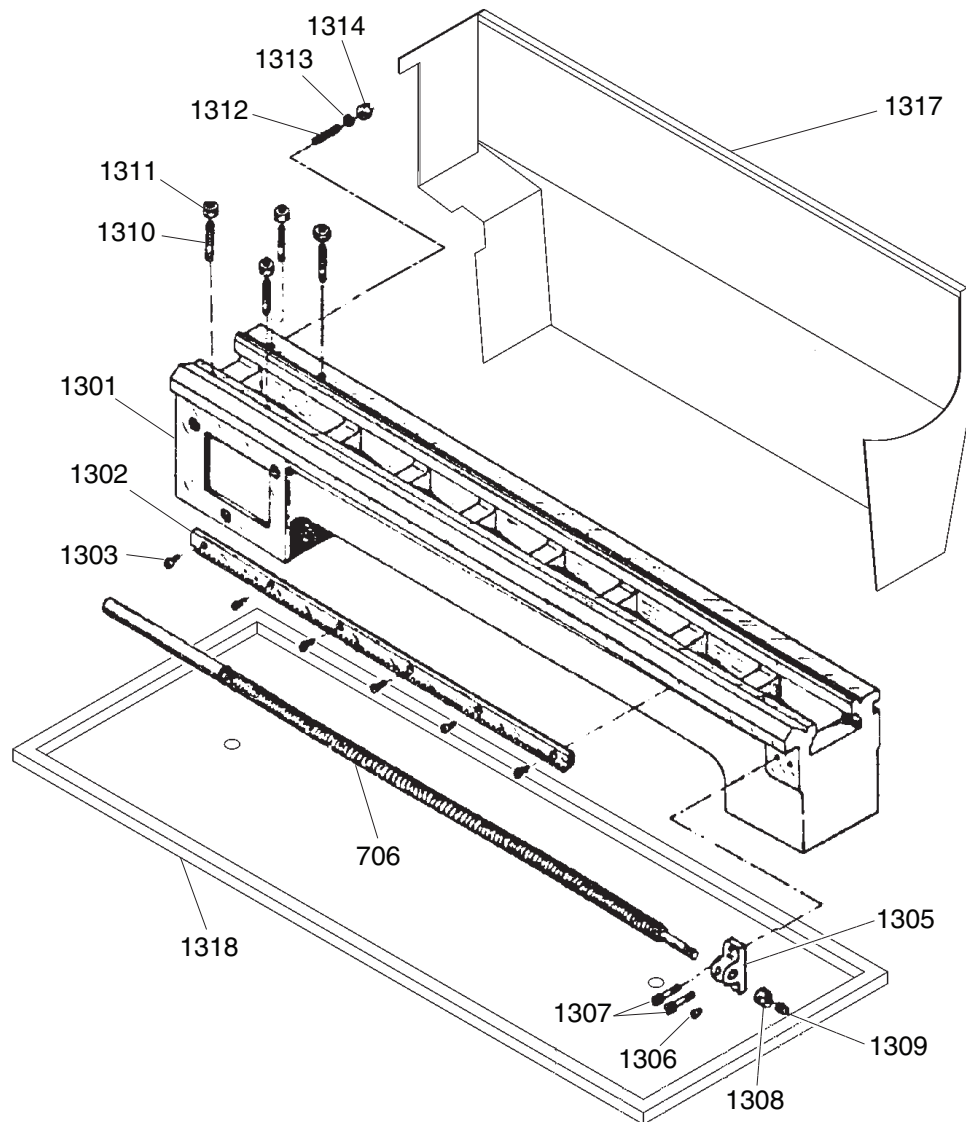
REF	PART #	DESCRIPTION
1201	P40001201	FOLLOW REST CASTING
1201V2	P40001201V2	FOLLOW REST ASSEMBLY V2.01.09
1202	P40001202	FOLLOW REST FINGER (2PC SET)
1203	P40001103	SPECIAL SCREW
1204	P40001204	ADJUSTING SCREW

REF	PART #	DESCRIPTION
1205	PN03M	HEX NUT M8-1.25
1206	PW01M	FLAT WASHER 8MM
1207	PSB07M	CAP SCREW M6-1 X 30
1208	PW03M	FLAT WASHER 6MM





# Bed

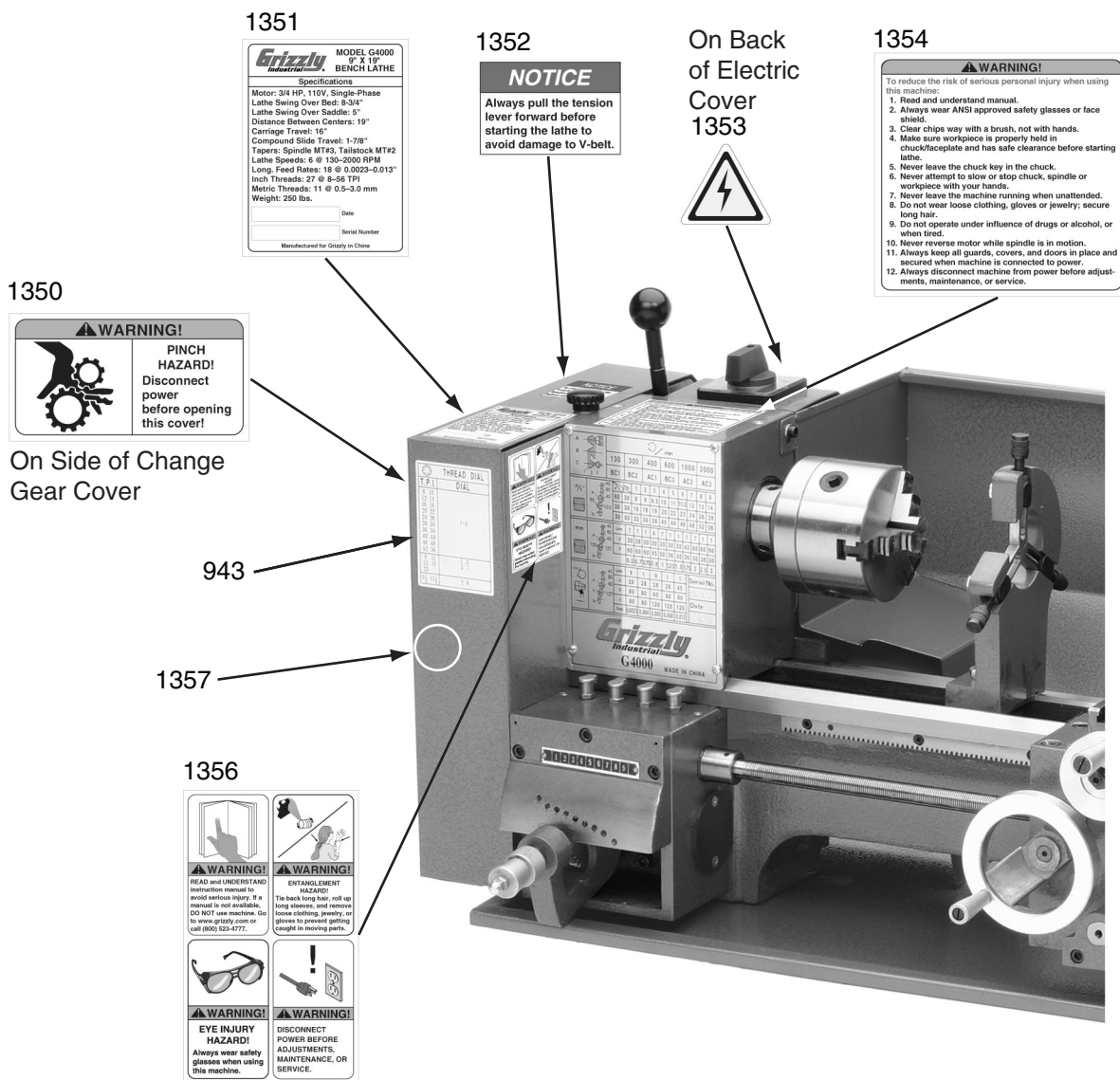


REF	PART #	DESCRIPTION
706	P4000706	LEADSCREW 9/16-16 x 25
1301	P40001301	BED
1302	P40001302	RACK
1303	PSB18M	CAP SCREW M4-.7 X 8
1305	P40001305	LEADSCREW BUSHING BLOCK
1306	P4000216	OIL PORT
1307	PSB02M	CAP SCREW M6-1 X 20
1308	P40001308	SPECIAL NUT

REF	PART #	DESCRIPTION
1309	PSS17M	SET SCREW M8-1.25 X 6
1310	P40001310	THREADED STUD M8-1.25 X 28
1311	PN03M	HEX NUT M8-1.25
1312	PSS12M	SET SCREW M6-1 X 25
1313	PW03M	FLAT WASHER 6MM
1314	PN01M	HEX NUT M6-1
1317	P40001317	CHIP SHIELD
1318	P40001318	CHIP PAN



# Label Placement



REF	PART #	DESCRIPTION
943	P4000943	THREAD DIAL CHART LABEL
1350	P40001350	PINCH HAZARD LABEL
1351	P40001351	MACHINE ID LABEL
1352	P40001352	TENSION LEVER NOTICE LABEL

REF	PART #	DESCRIPTION
1353	PLABEL-14A	ELECTRICITY LABEL
1354	P40001354	WARNINGS LABEL
1356	P40001356	GROUPED WARNINGS LABEL
1357	PPAINT-1	GRIZZLY GREEN TOUCH-UP PAINT

## WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine **MUST** maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, **REPLACE** that label before using the machine again. Contact Grizzly at (800) 523-4777 or [www.grizzly.com](http://www.grizzly.com) to order new labels.





# WARRANTY CARD

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone # \_\_\_\_\_ Email \_\_\_\_\_ Invoice # \_\_\_\_\_

Model # \_\_\_\_\_ Order # \_\_\_\_\_ Serial # \_\_\_\_\_

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. **Of course, all information is strictly confidential.**

1. How did you learn about us?

\_\_\_\_\_ Advertisement

\_\_\_\_\_ Friend

\_\_\_\_\_ Catalog

\_\_\_\_\_ Card Deck

\_\_\_\_\_ Website

\_\_\_\_\_ Other:

2. Which of the following magazines do you subscribe to?

\_\_\_\_\_ Cabinet Maker

\_\_\_\_\_ Popular Mechanics

\_\_\_\_\_ Today's Homeowner

\_\_\_\_\_ Family Handyman

\_\_\_\_\_ Popular Science

\_\_\_\_\_ Wood

\_\_\_\_\_ Hand Loader

\_\_\_\_\_ Popular Woodworking

\_\_\_\_\_ Wooden Boat

\_\_\_\_\_ Handy

\_\_\_\_\_ Practical Homeowner

\_\_\_\_\_ Woodshop News

\_\_\_\_\_ Home Shop Machinist

\_\_\_\_\_ Precision Shooter

\_\_\_\_\_ Woodsmith

\_\_\_\_\_ Journal of Light Cont.

\_\_\_\_\_ Projects in Metal

\_\_\_\_\_ Woodwork

\_\_\_\_\_ Live Steam

\_\_\_\_\_ RC Modeler

\_\_\_\_\_ Woodworker West

\_\_\_\_\_ Model Airplane News

\_\_\_\_\_ Rifle

\_\_\_\_\_ Woodworker's Journal

\_\_\_\_\_ Modeltec

\_\_\_\_\_ Shop Notes

\_\_\_\_\_ Other:

\_\_\_\_\_ Old House Journal

\_\_\_\_\_ Shotgun News

3. What is your annual household income?

\_\_\_\_\_ \$20,000-\$29,000

\_\_\_\_\_ \$30,000-\$39,000

\_\_\_\_\_ \$40,000-\$49,000

\_\_\_\_\_ \$50,000-\$59,000

\_\_\_\_\_ \$60,000-\$69,000

\_\_\_\_\_ \$70,000+

4. What is your age group?

\_\_\_\_\_ 20-29

\_\_\_\_\_ 30-39

\_\_\_\_\_ 40-49

\_\_\_\_\_ 50-59

\_\_\_\_\_ 60-69

\_\_\_\_\_ 70+

5. How long have you been a woodworker/metalworker?

\_\_\_\_\_ 0-2 Years

\_\_\_\_\_ 2-8 Years

\_\_\_\_\_ 8-20 Years

\_\_\_\_\_ 20+ Years

6. How many of your machines or tools are Grizzly?

\_\_\_\_\_ 0-2

\_\_\_\_\_ 3-5

\_\_\_\_\_ 6-9

\_\_\_\_\_ 10+

7. Do you think your machine represents a good value?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

8. Would you recommend Grizzly Industrial to a friend?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?

**Note:** We never use names more than 3 times.

\_\_\_\_\_ Yes

\_\_\_\_\_ No

10. Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Place  
Stamp  
Here



GRIZZLY INDUSTRIAL, INC.  
P.O. BOX 2069  
BELLINGHAM, WA 98227-2069



FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name\_\_\_\_\_

Street\_\_\_\_\_

City\_\_\_\_\_State\_\_\_\_\_Zip\_\_\_\_\_

TAPE ALONG EDGES--PLEASE DO NOT STAPLE



# WARRANTY AND RETURNS

---

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.



Buy Direct and Save with Grizzly® – Trusted, Proven and a Great Value!  
~Since 1983~

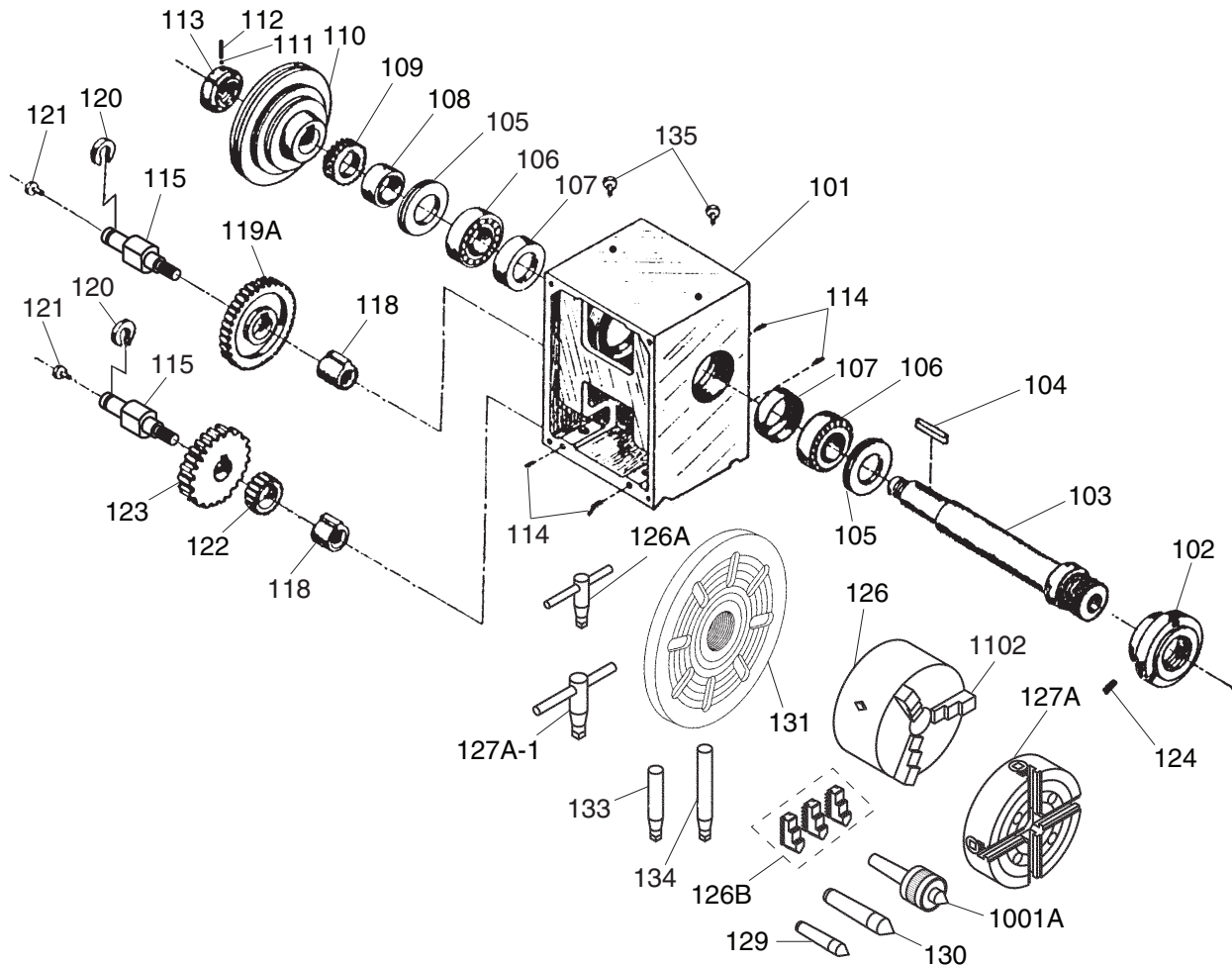
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# SECTION 9: PARTS

## Headstock

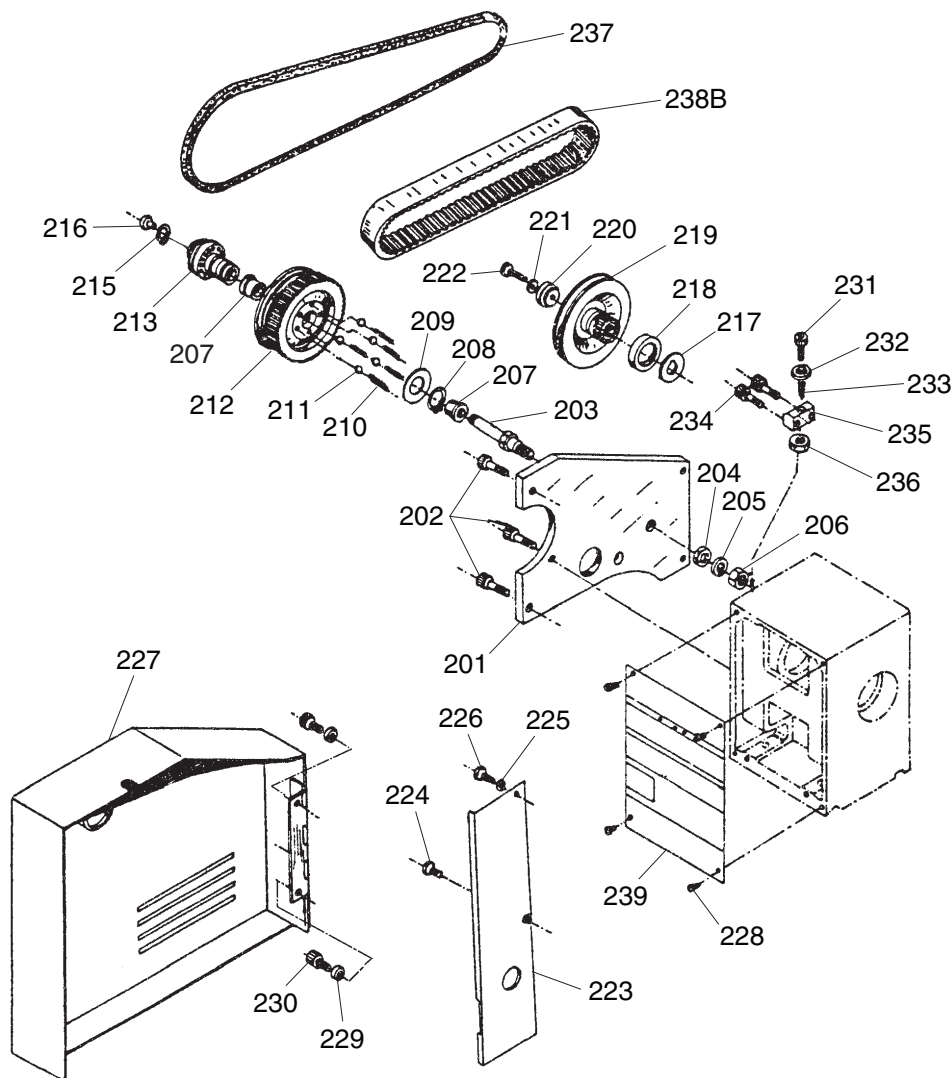


REF	PART #	DESCRIPTION
101	P4000101	HEADSTOCK CASTING
102	P4000102	3-JAW CHUCK BACK PLATE
103	P4000103	SPINDLE
104	P4000104	SPINDLE SHAFT KEY
105	P4000105	GASKET
106	P32007	TAPERED BEARING 32007
107	P4000107	BEARING CAP
108	P4000108	SPACER
109	P4000109	GEAR 40T I.D. 30MM
110	P4000110	SPINDLE PULLEY
111	P4000111	STEEL BALL
112	PSS20M	SET SCREW M8-1.25 X 8
113	P4000113	THREADED LOCK COLLAR
114	PSS26M	SET SCREW M5-.8 X 6
115	P4000115	SHAFT
118	P4000405	KEYED BUSHING
119A	P4000119A	GEAR 80T, METAL
120	P4000120	SPECIAL WASHER

REF	PART #	DESCRIPTION
121	P40001020	OIL PORT 6MM
122	P4000122	GEAR 40T I.D. 14MM
123	P4000123	GEAR 28T
124	PSS03M	SET SCREW M6-1 X 8
126	P4000126	3-JAW CHUCK 4"
126A	P4000126A	3-JAW CHUCK KEY
126B	P4000126B	3-JAW REVERSE JAWS 3-PC SET
127A	P9972Z1117	4-JAW CHUCK 6-1/4"
127A-1	P4000127A-1	CHUCK KEY 4 JAW
129	P4000129	DEAD CENTER MT#2
130	P4000130	DEAD CENTER MT#3
131	P4000131	FACE PLATE 7-1/2"
133	P4000133	CHUCK BAR SHORT
134	P4000134	CHUCK BAR LONG
135	P4000135	OIL PORT 8MM
1001A	P40001001A	LIVE CENTER MT#2
1102	P40001102	3-JAW STANDARD JAWS 3PC SET



# Drive Belt

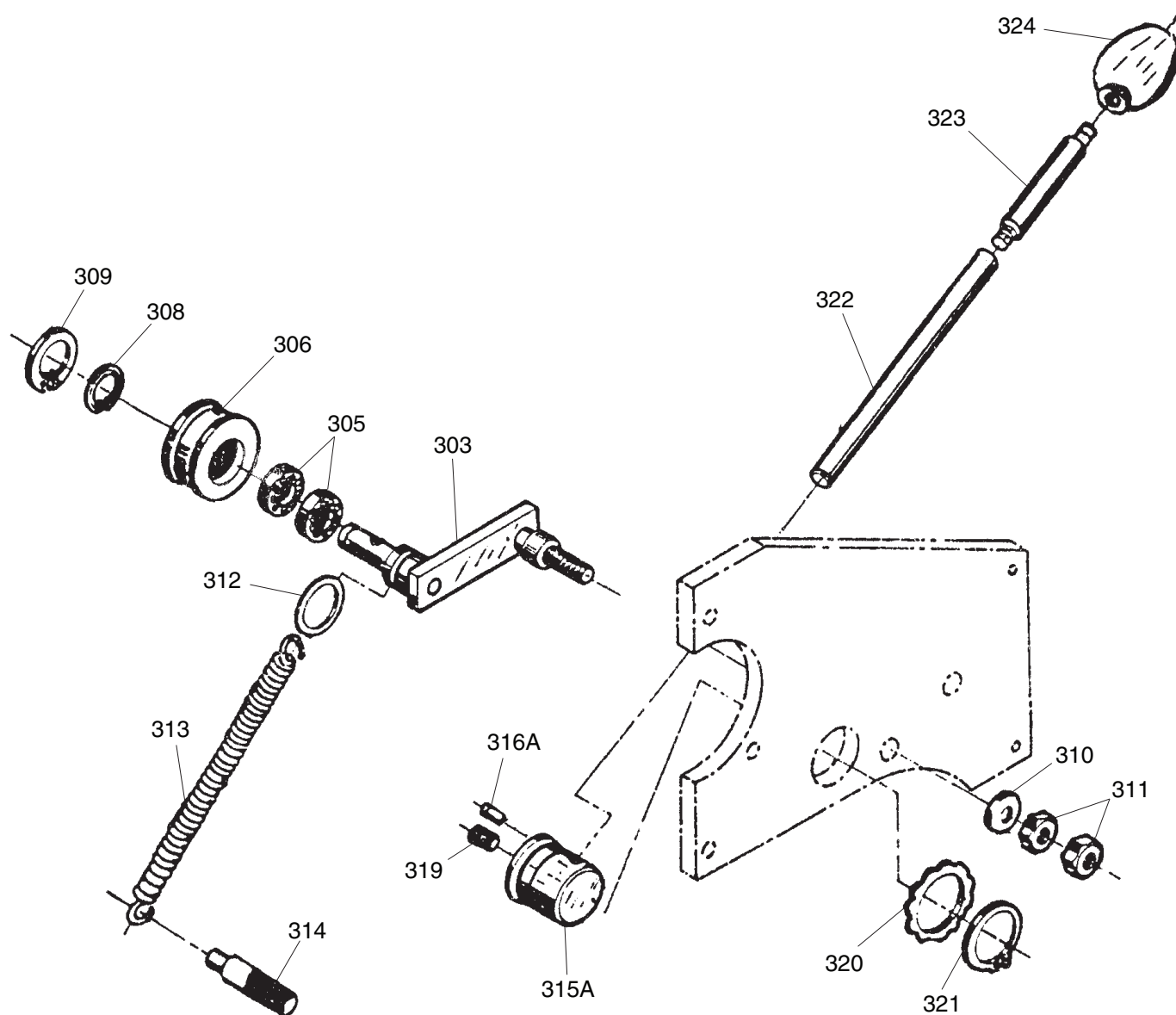


REF	PART #	DESCRIPTION
201	P4000201	BRACKET PLATE
202	PSB15M	CAP SCREW M5-.8 X 20
203	P4000203	IDLER PULLEY SHAFT
204	PW04M	FLAT WASHER 10MM
205	PLW06M	LOCK WASHER 10MM
206	PN02M	HEX NUT M10-1.5
207	P4000207	BUSHING
208	PR11M	EXT RETAINING RING 25MM
209	P4000209	SPECIAL WASHER
210	P4000210	COMPRESSION SPRING
211	P4000211	BALL
212	P4000212	IDLER PULLEY
213	P4000213	CLUTCH HUB
215	PR03M	EXT RETAINING RING 12MM
216	P4000216	OIL PORT
217	P4000217A	SPACER - CHINA MOTOR
218	P4000218A	COLLAR - CHINA MOTOR
219	P4000219A	MOTOR PULLEY - CHINA MOTOR
220	P4000220	SPECIAL WASHER

REF	PART #	DESCRIPTION
221	PLW03M	LOCK WASHER 6MM
222	PSB06M	CAP SCREW M6-1 X 25
223	P4000223	COVER PLATE
224	PSB33M	CAP SCREW M5-.8 X 12
225	PW02M	FLAT WASHER 5MM
226	PSB03M	CAP SCREW M5-.8 X 8
227	P4000227	CHANGE GEAR COVER W/HINGE
228	PSB17M	CAP SCREW M4-.7 X 10
229	PW03M	FLAT WASHER 6MM
230	PSB04M	CAP SCREW M6-1 X 10
231	PSB06M	CAP SCREW M6-1 X 25
232	PW03M	FLAT WASHER 6MM
233	P4000233	COMPRESSION SPRING
234	PSB02M	CAP SCREW M6-1 X 20
235	P4000235	CLAMP BLOCK
236	PN01M	HEX NUT M6-1
237	P4000237	V-BELT M5 X 710 (QTY 1)
238B	P4000238B	TOOTH BELT 170 X L050 CHINA
239	P4000239	CONFIGURATION PLATE



# Belt Tension Lever



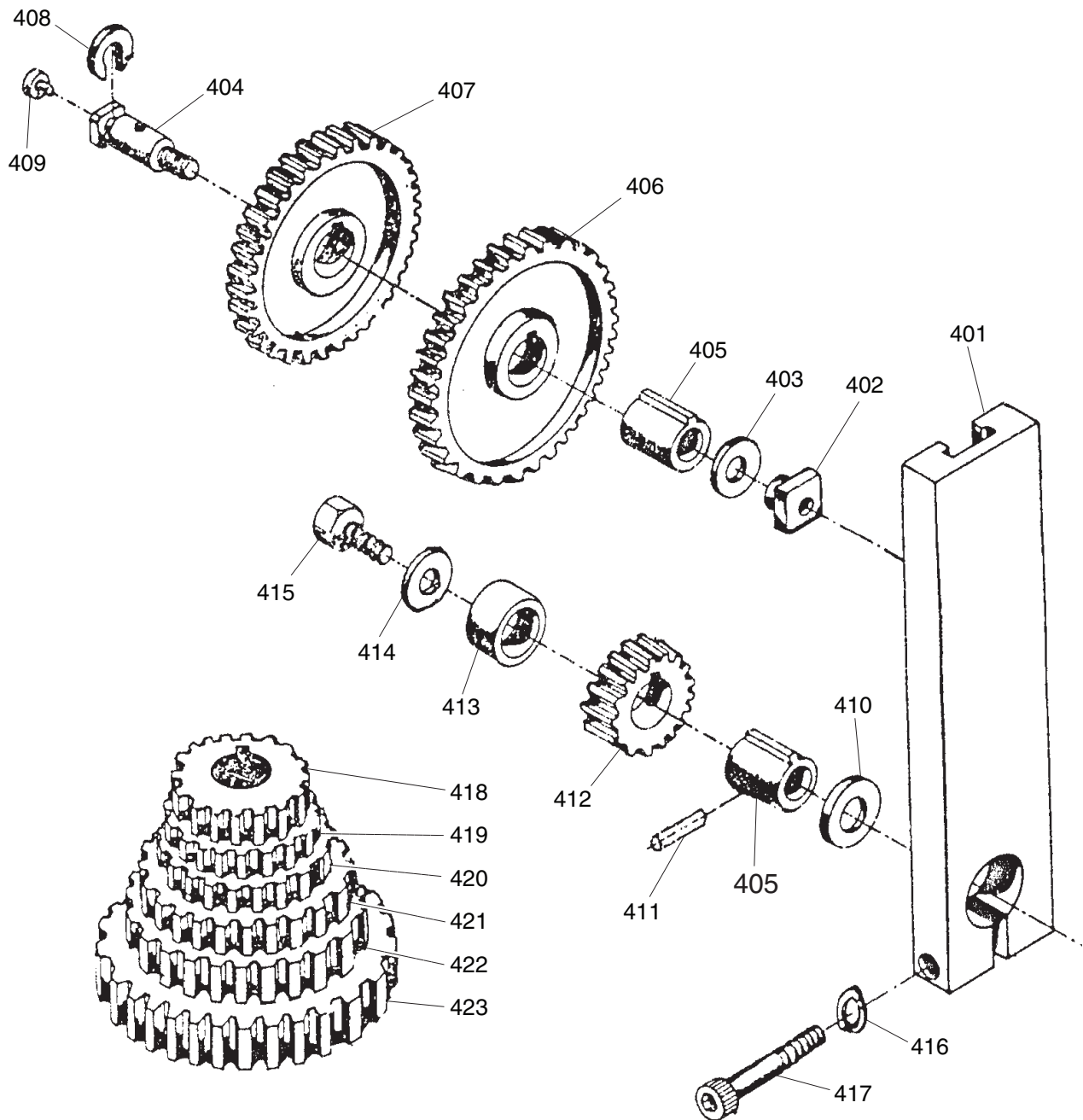
REF	PART #	DESCRIPTION
303	P4000303	LEVER BRACKET
305	P6001ZZ	BALL BEARING 6001ZZ
306	P4000306	ROLLER
308	PR03M	EXT RETAINING RING 12MM
309	PR20M	INT RETAINING RING 28MM
310	PW04M	FLAT WASHER 10MM
311	PN02M	HEX NUT M10-1.5
312	P4000312	SPECIAL WASHER
313	P4000313	TENSION SPRING

REF	PART #	DESCRIPTION
314	P4000314	STUD BOLT
315A	P4000315A	TENSIONING CAM V2.08.07
316A	PSB26M	CAP SCREW M6-1 X 12
319	PSS20M	SET SCREW M8-1.25 X 8
320	P4000320	SPECIAL WASHER
321	PR84M	EXT RETAINING RING 34MM
322	P4000322	BELT TENSION LEVER
323	P4000323	EXTENSION ROD
324	P4000324	KNOB





# Change Gears

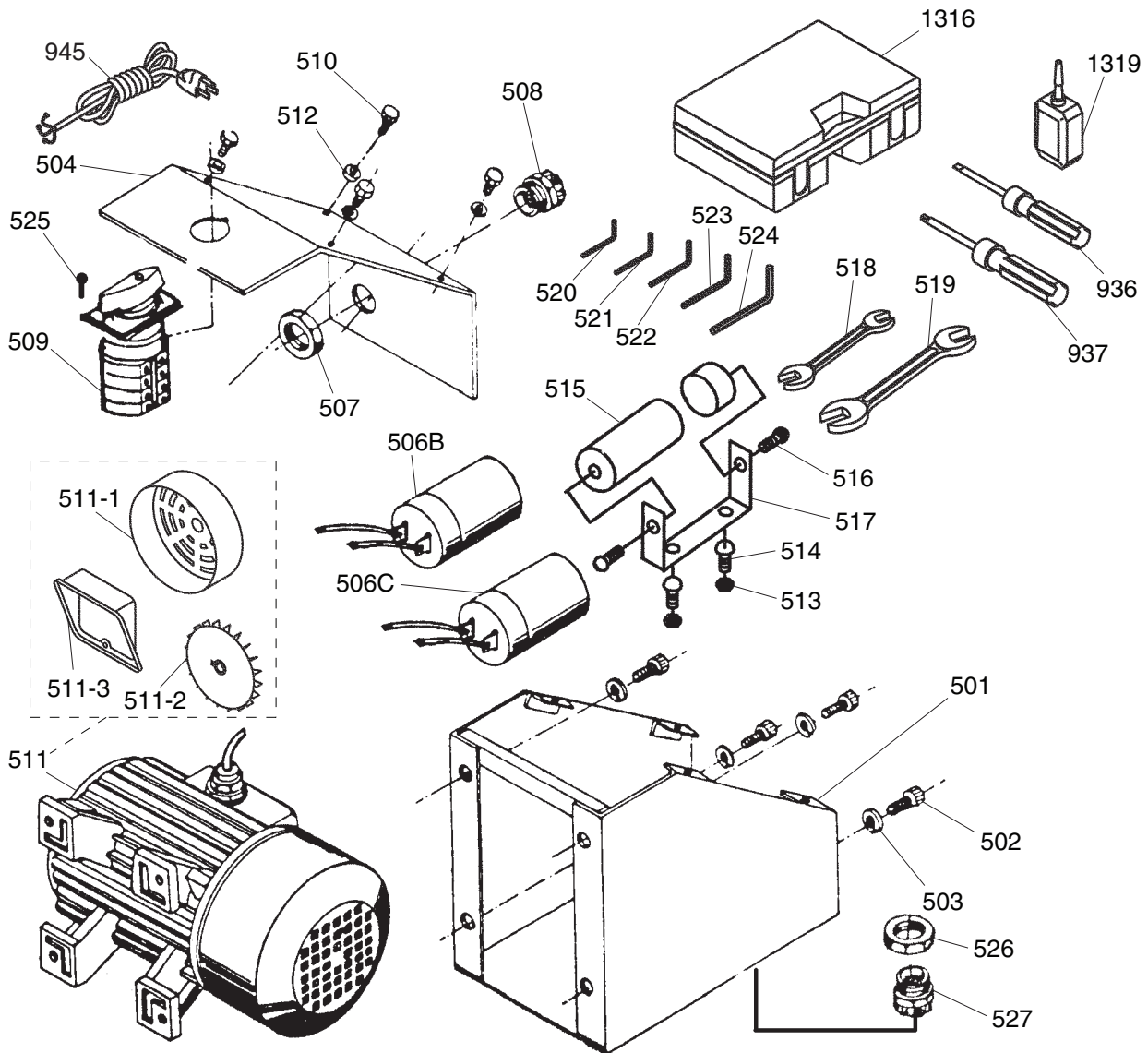


REF	PART #	DESCRIPTION
401	P4000401	BRACKET
402	P4000402	T-NUT M6-1
403	PW03M	FLAT WASHER 6MM
404	P4000404	SHAFT
405	P4000405	KEYED BUSHING
406	P4000406	GEAR 127T
407	P4000407	GEAR 120T
408	P4000408	SPECIAL WASHER
409	P4000409	OIL PORT 6MM
410	PW04M	FLAT WASHER 10MM
411	PRP19M	ROLL PIN 4 X 14
412	P4000412	GEAR 30T

REF	PART #	DESCRIPTION
413	P4000413	SPACER
414	PW03M	FLAT WASHER 6MM
415	PSB04M	CAP SCREW M6-1 X 10
416	PLW03M	LOCK WASHER 6MM
417	PSB48M	CAP SCREW M6-1 X 35
418	P4000418	GEAR 28T
419	P4000419	GEAR 36T
420	P4000420	GEAR 42T
421	P4000421	GEAR 45T
422	P4000422	GEAR 60T
423	P4000423	GEAR 80T



# Electrical & Tools

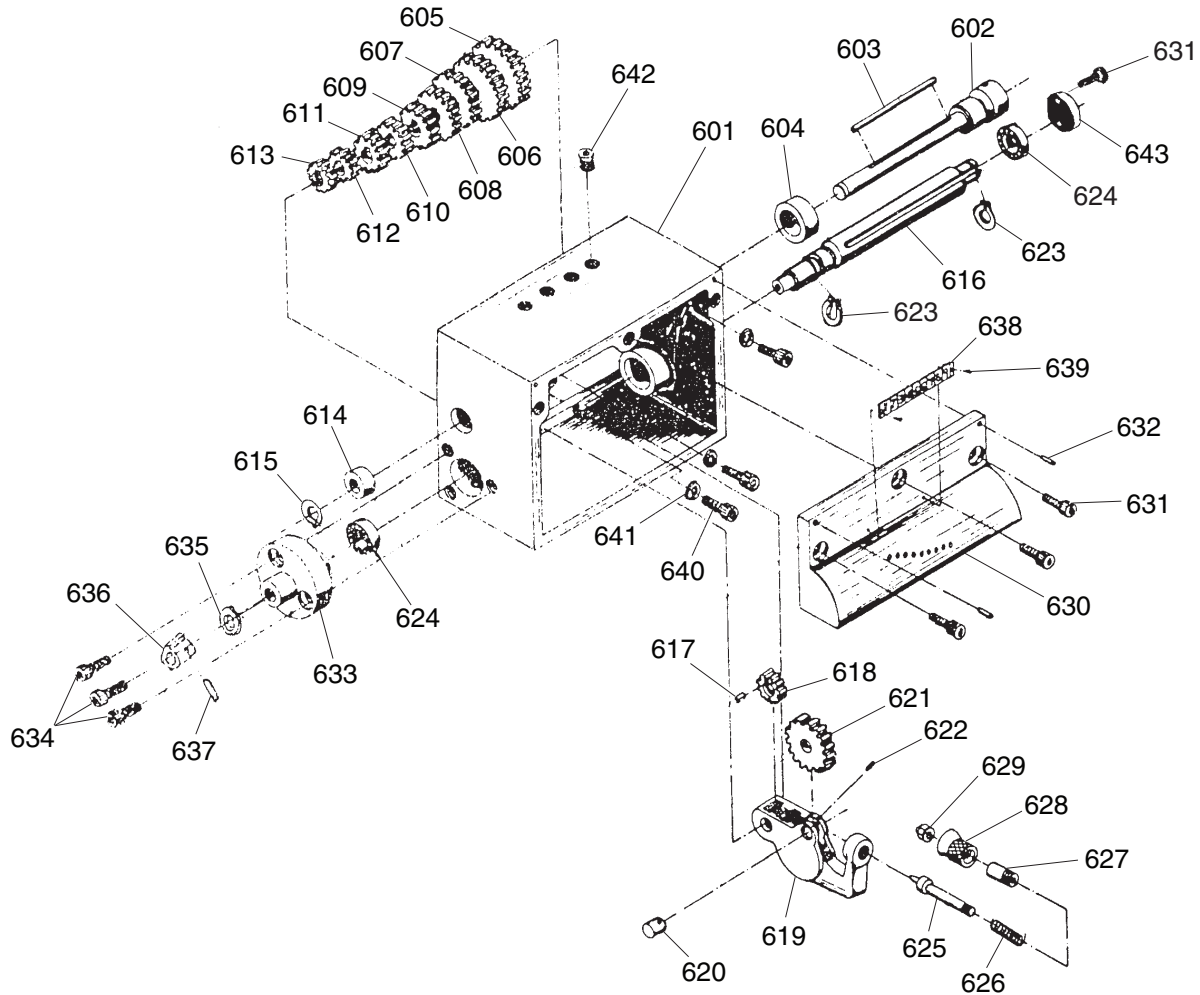


REF	PART #	DESCRIPTION
501	P4000501	ELECTRICAL BOX
502	PSB50M	CAP SCREW M5-.8 X 10
503	PLW03M	LOCK WASHER 6MM
504	P4000504	ELECTRICAL BOX COVER
505	P4000505	CAPACITOR COVER CAP
506B	P4000506B	R CAP. 20M 400V 1-5/8" X 2-7/8"
506C	P4000506C	S CAP. 100M 250V 1-5/8" X 3-1/8"
507	P4000507	STRAIN RELIEF NUT M16-1
508	P4000508	STRAIN RELIEF M16
509	P4000509	SPINDLE SWITCH
510	PS09M	PHLP HD SCR M5-.8 X 10
511	P4000511	MOTOR 3/4HP 110V 60HZ
511-1	P4000511-1	MOTOR FAN COVER
511-2	P4000511-2	MOTOR FAN
511-3	P4000511-3	TERMINAL COVER
512	PLW01M	LOCK WASHER 5MM
513	PN04M	HEX NUT M4-.7
514	PS07M	PHLP HD SCR M4-.7 X 8

REF	PART #	DESCRIPTION
515	P4000515	CAPACITOR COVER
516	PS17M	PHLP HD SCR M4-.7 X 6
517	P4000517	CAPACITOR CLIP
518	PWR810	WRENCH 8/10MM
519	PWR1214	WRENCH 12/14MM
520	PAW01.5M	HEX WRENCH 1.5MM
521	PAW02M	HEX WRENCH 2MM
522	PAW04M	HEX WRENCH 4MM
523	PAW05M	HEX WRENCH 5MM
524	PAW06M	HEX WRENCH 6MM
525	PS56M	PHLP HD SCR M4-.7 X 16
526	P4000526	STRAIN RELIEF NUT M24-1.5
527	P4000527	STRAIN RELIEF M24
936	PSDF2	SCREWDRIVER FLAT #2
937	PSDP2	SCREWDRIVER PHILLIPS #2
945	PWRCRD110L	POWER CORD 16/3/110V
1316	P40001315	TOOL BOX
1319	P40001319	OIL BOTTLE



# Quick Change Gears



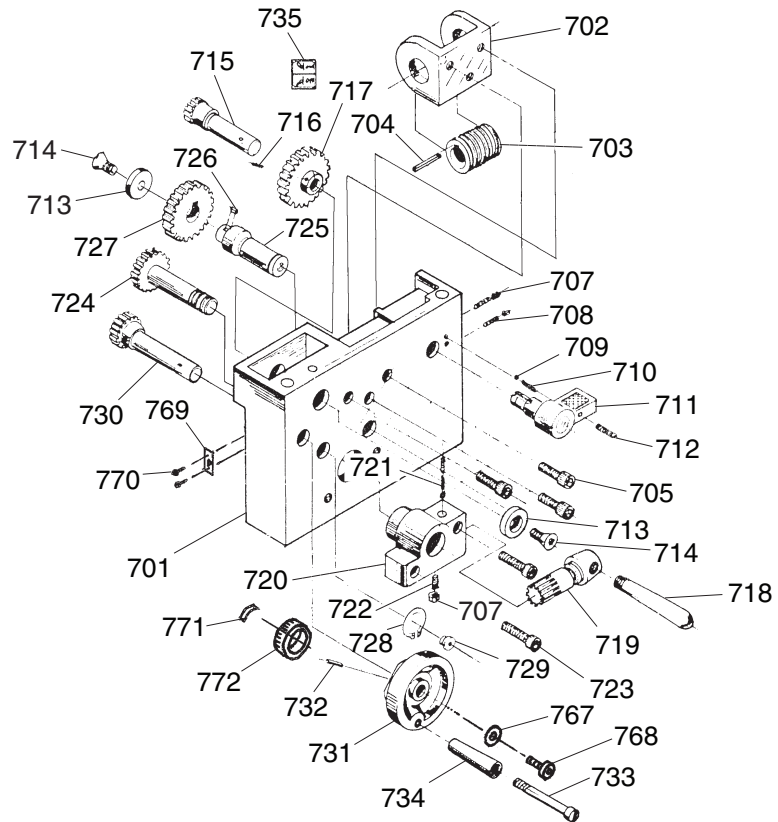
REF	PART #	DESCRIPTION
601	P4000601	GEARBOX CASTING
602	P4000602	SHAFT
603	PK13M	KEY 5 X 5 X 70
604	P4000604	BUSHING
605	P4000605	GEAR 28T
606	P4000606	GEAR 26T
607	P4000607	GEAR 24T
608	P4000608	GEAR 23T
609	P4000609	GEAR 22T
610	P4000610	GEAR 20T
611	P4000611	GEAR 19T
612	P4000612	GEAR 18T
613	P4000613	GEAR 16T
614	P4000614	BUSHING
615	PR06M	EXT RETAINING RING 16MM
616	P4000616	SHAFT
617	PK10M	KEY 5 X 5 X 12
618	P4000618	GEAR 16T
619	P4000619	SHIFT ARM
620	P4000620	SHAFT
621	P4000621	GEAR 36T
622	PSS05M	SET SCREW M5-.8 X 10

REF	PART #	DESCRIPTION
623	PR05M	EXT RETAINING RING 15MM
624	P6202ZZ	BALL BEARING 6202ZZ
625	P4000625	PLUNGER
626	P4000626	COMPRESSION SPRING
627	P4000627	BUSHING
628	P4000628	KNURLED KNOB
629	P4000629	SPECIAL ACORN NUT
630	P4000630	GEARBOX FRONT COVER
631	PSB01M	CAP SCREW M6-1 X 16
632	PRP20M	ROLL PIN 4 X 22
633	P4000633	BRACKET
634	PSB04M	CAP SCREW M6-1 X 10
635	PW04M	FLAT WASHER 10MM
636	P4000636	BUSHING
637	PRP19M	ROLL PIN 4 X 14
638	P4000638	NUMBER PLATE
639	P4000809	RIVET 2 X 5
640	PSB14M	CAP SCREW M8-1.25 X 20
641	PLW04M	LOCK WASHER 8MM
642	P4000642	OIL CUP
643	P4000643	BEARING CAP

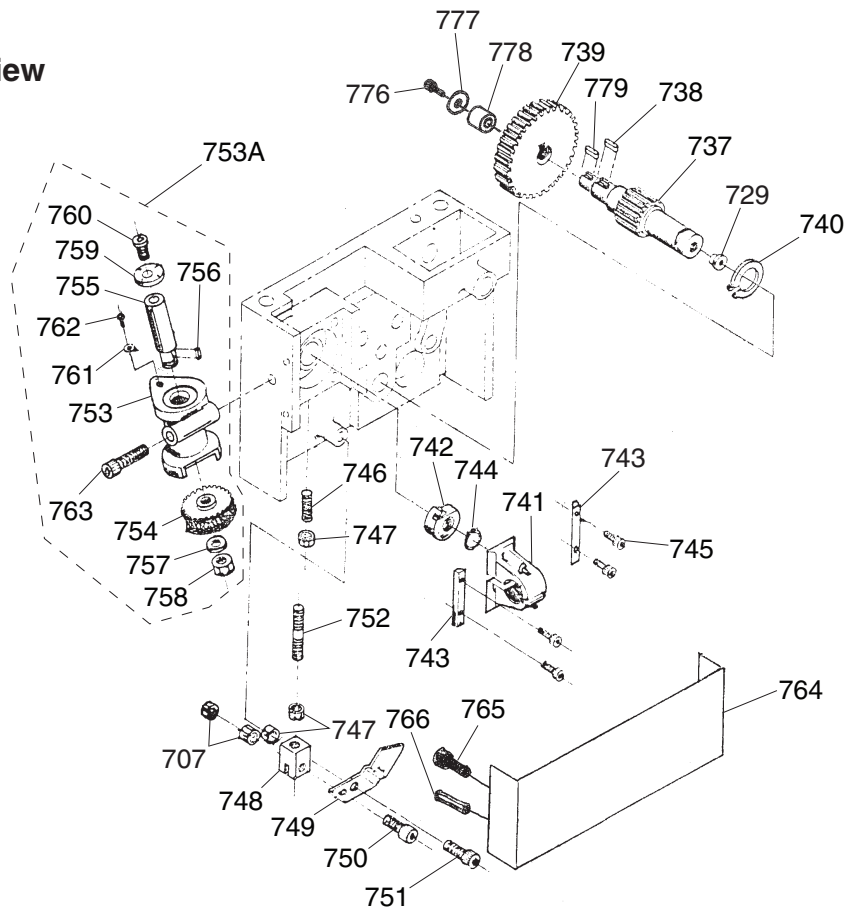


# Apron Breakdown

Front View



Rear View



# Apron Parts List

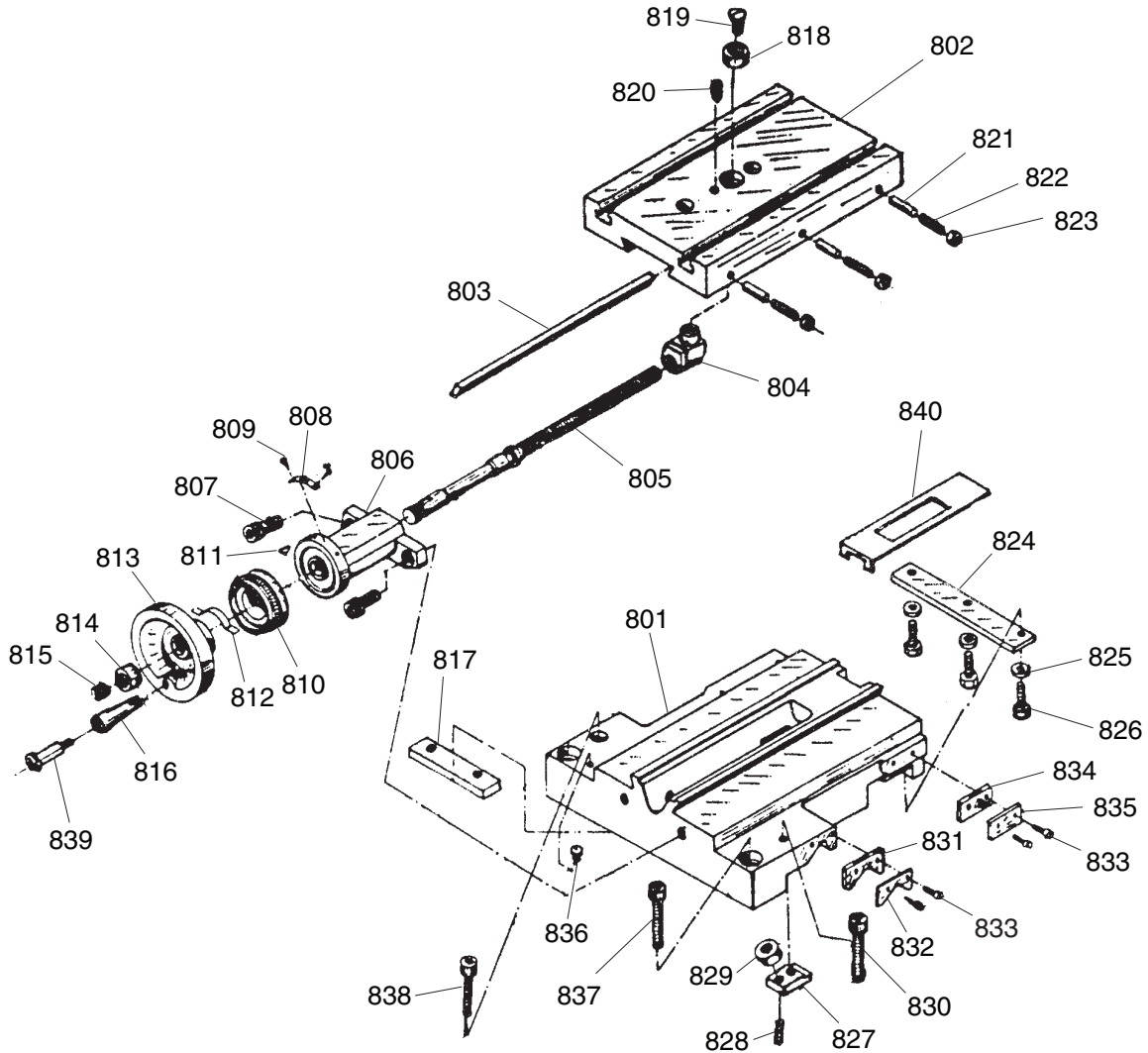
REF	PART #	DESCRIPTION
701	P4000701	APRON CASTING
702	P4000702	BRACKET
703	P4000703	WORM GEAR
704	PK92M	KEY 3 X 3 X 25
705	PSB06M	CAP SCREW M6-1 X 25
707	PN04M	HEX NUT M4-.7
708	PSS22M	SET SCREW M4-.7 X 12
709	P4000709	STEEL BALL
710	P4000710	COMPRESSION SPRING
711	P4000711	HALF-NUT LEVER
712	PSS02M	SET SCREW M6-1 X 6
713	P4000713	SPECIAL WASHER
714	PFH04M	FLAT HD SCR M6-1 X 8
715	P4000715	GEAR SHAFT 12T
716	PRP22M	ROLL PIN 4 X 32
717	P4000717	GEAR 43T
718	P4000718	FEED LEVER
719	P4000719	GEAR SHAFT 13T
720	P4000720	BRACKET
721	P4000721	COMPRESSION SPRING
722	PSS23M	SET SCREW M4-.7 X 10
723	PSB07M	CAP SCREW M6-1 X 30
724	P4000724	GEAR SHAFT 43T
725	P4000725	SHAFT
726	PK05M	KEY 4 X 4 X 10
727	P4000727	GEAR 41T
728	PR02M	EXT RETAINING RING 14MM
729	P4000729	OIL PORT 8MM
730	P4000730	GEAR SHAFT 17T
731	P4000731	HANDWHEEL
732	PRP04M	ROLL PIN 4 X 24
733	P4000733	SPECIAL SCREW
734	P4000734	HANDLE
735	P4000735	LEVER DIRECTION LABEL
737	P4000737	GEAR SHAFT 18T
738	PK05M	KEY 4 X 4 X 10
739	P4000739	GEAR 42T
740	PR03M	EXT RETAINING RING 12MM

REF	PART #	DESCRIPTION
741	P4000741	HALF NUT SAE 16TPI
742	P4000742	LOCKING CAM
743	P4000743	HALF-NUT GUIDE BAR
744	PR39M	EXT RETAINING RING 8MM
745	PSB16M	CAP SCREW M4-.7 X 16
746	PSS24M	SET SCREW M5-.8 X 25
747	PN04M	HEX NUT M4-.7
748	P4000748	CONTROL BLOCK
749	P4000749	JOINT PLATE
750	PSB39M	CAP SCREW M4-.7 X 20
751	PSB24M	CAP SCREW M5-.8 X 16
752	P4000752	THREADED STUD M5-.8
753	P4000753	THREAD DIAL BODY
753A	P4000753A	THREAD DIAL BODY ASSEMBLY
754	P4000754	WORM GEAR 64T
755	P4000755	SHAFT
756	PK39M	KEY 3 X 3 X 10
757	PLW04M	LOCK WASHER 8MM
758	PN03M	HEX NUT M8-1.25
759	P4000759	THREAD DIAL
760	P4000760	SPECIAL SCREW
761	P4000761	POINTER
762	P4000762	RIVET
763	PSB49M	CAP SCREW M6-1 X 60
764	P4000764	APRON REAR COVER
765	PSB33M	CAP SCREW M5-.8 X 12
766	PRP02M	ROLL PIN 3 X 16
767	P4000767	SPECIAL WASHER
768	P4000768	SPECIAL CAP SCREW
769	P4000769	PLATE
770	P4000770	RIVET 2 X 5
771	P4000771	INDEX PLATE
772	P4000772	GRADUATED DIAL
776	PSB50M	CAP SCREW M5-.8 X 10
777	PW02M	FLAT WASHER 5MM
778	P4000778	BUSHING
779	PK03M	KEY 3 X 3 X 8





# Saddle & Cross Slide

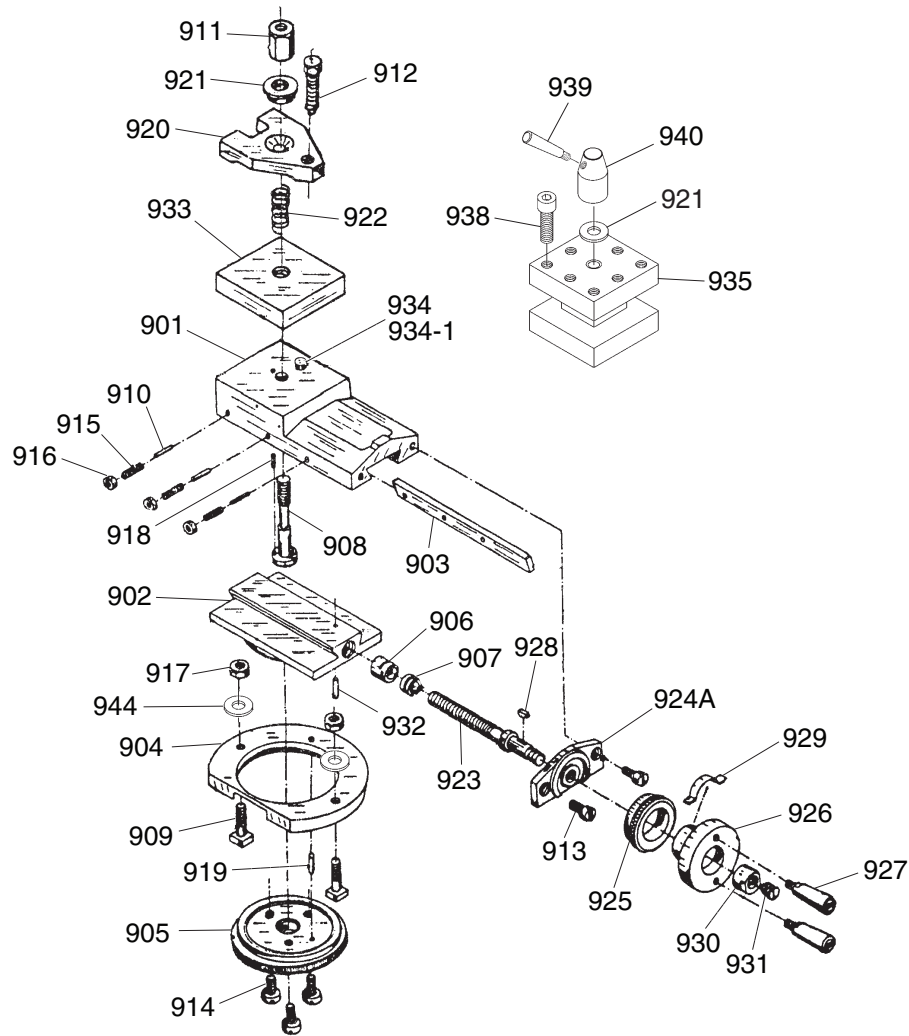


REF	PART #	DESCRIPTION
801	P4000801	SADDLE
802	P4000802	CROSS SLIDE
803	P4000803	CROSS SLIDE GIB
804	P4000804	CROSS SLIDE LEADSCREW NUT
805	P4000805	CROSS SLIDE LEADSCREW
806	P4000806	BRACKET
807	PSB24M	CAP SCREW M5-.8 X 16
808	P4000808	INDEX PLATE
809	P4000809	RIVET 2 X 5
810	P4000810	GRADUATED DIAL
811	P4000811	WOODRUFF KEY
812	P4000812	INDICATOR PLATE
813	P4000813	HANDWHEEL
814	P4000814	SPECIAL HEX NUT
815	PSS17M	SET SCREW M8-1.25 X 6
816	P4000734	HANDLE
817	P4000817	SLIDE BLOCK
818	P4000818	BUSHING
819	PFH02M	FLAT HD SCR M6-1 X 12
820	PSS04M	SET SCREW M6-1 X 12

REF	PART #	DESCRIPTION
821	P4000821	GIB PIN
822	PSS22M	SET SCREW M4-.7 X 12
823	PN04M	HEX NUT M4-.7
824	P4000824	SADDLE GIB CLAMP
825	PW03M	FLAT WASHER 6MM
826	PSB01M	CAP SCREW M6-1 X 16
827	P4000827	CLIP
828	PSS25M	SET SCREW M6-1 X 20
829	PN01M	HEX NUT M6-1
830	PSB06M	CAP SCREW M6-1 X 25
831	P4000831	FRONT WAY WIPER
832	P4000832	FRONT WIPER CLAMP
833	PS17M	PHLP HD SCR M4-.7 X 6
834	P4000834	REAR WAY WIPER
835	P4000835	REAR WIPER CLAMP
836	P4000836	OIL PORT 6MM
837	PSB13M	CAP SCREW M8-1.25 X 30
838	PSB06M	CAP SCREW M6-1 X 25
839	P4000839	SPECIAL SCREW
840	P4000840	CHIP GUARD



# Compound Slide

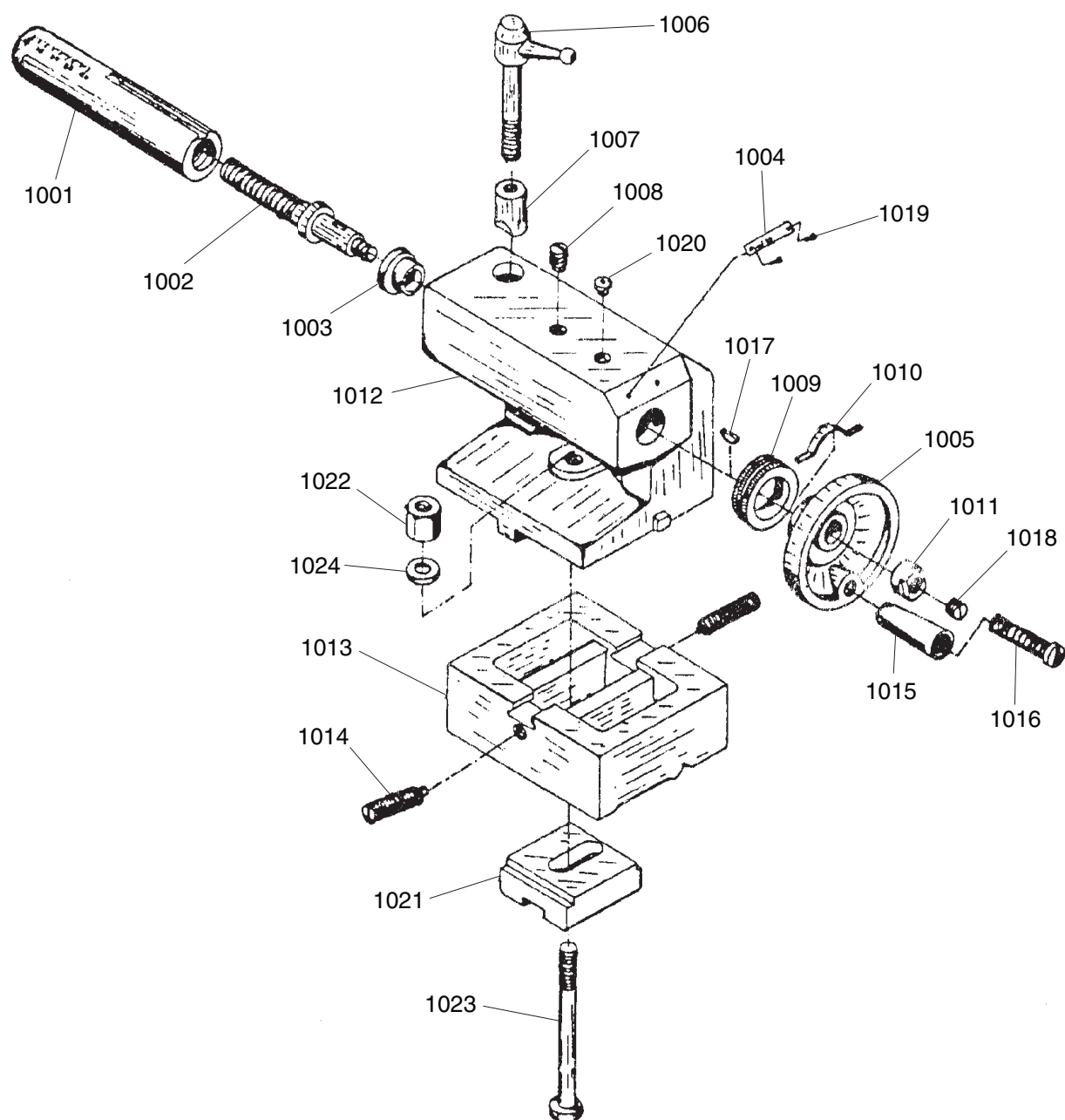


REF	PART #	DESCRIPTION
901	P4000901	COMPOUND SLIDE
902	P4000902	SWIVEL BASE
903	P4000903	COMPOUND SLIDE GIB
904	P4000904	CLAMPING RING
905	P4000905	GRADUATED DIAL
906	P4000906	COMPOUND LEADSCREW NUT
907	P4000907	ADJUSTING SCREW
908	P4000908	TOOL POST STUD
909	P4000909	SPECIAL T-BOLT
910	P4000910	GIB PIN
911	P4000911	TOOL POST NUT
912	PB26M	HEX BOLT M8-1.25 X 30
913	PSB50M	CAP SCREW M5-.8 X 10
914	PFH02M	FLAT HD SCR M6-1 X 12
915	PSS23M	SET SCREW M4-.7 X 10
916	PN04M	HEX NUT M4-.7
917	PN01M	HEX NUT M6-1
918	PRP15M	ROLL PIN 3 X 8
919	PRP37M	ROLL PIN 3 X 14
920	P4000920	C-STYLE TOOL CLAMP

REF	PART #	DESCRIPTION
921	PW01M	FLAT WASHER 8MM
922	P4000922	COMPRESSION SPRING
923	P4000923	COMPOUND SLIDE LEADSCREW
924A	P4000924A	LEADSCREW MOUNT V2.02.07
925	P4000925	GRADUATED DIAL
926	P4000926	HANDWHEEL
927	P4000927	HANDLE
928	P4000928	KEY 3 X 13
929	P4000812	DIAL POINTER
930	P4000930	THREADED COLLAR
931	PSS17M	SET SCREW M8-1.25 X 6
932	PRP61M	ROLL PIN 3 X 12
933	P4000933	C-STYLE TOOL BASE
934	P4000934	TOOL POST PIN
934-1	P4000934-1	PIN SPRING
935	P4000935	4-WAY TOOL REST
938	PSB13M	CAP SCREW M8-1.25 X 30
939	P4000939	LOCK HANDLE
940	P4000940	SPECIAL LOCK NUT
944	PW03M	FLAT WASHER 6MM



# Tailstock

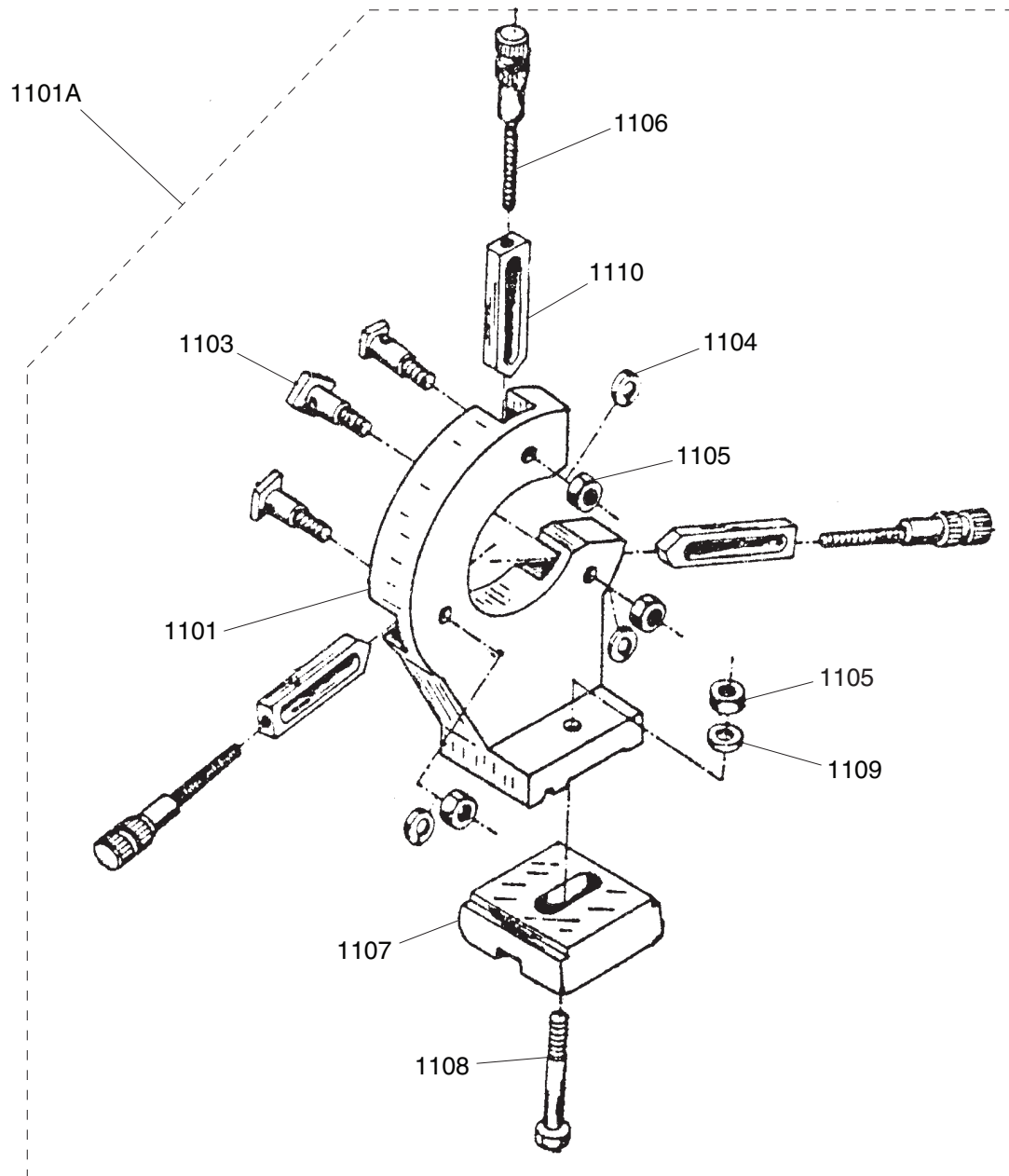


REF	PART #	DESCRIPTION
1001	P40001001	TAILSTOCK QUILL
1002	P40001002	TAILSTOCK LEADSCREW
1003	P40001003	BUSHING
1004	P40001004	OFFSET INDICATOR PLATE
1005	P40001005	HANDWHEEL
1006	P40001006	QUILL LOCK LEVER
1007	P40001007	CLAMP
1008	PSS05M	SET SCREW M5-.8 X 10
1009	P40001009	GRADUATED DIAL
1010	P40001010	POINTER PLATE
1011	P40001011	SPECIAL NUT
1012	P40001012	TAILSTOCK BODY

REF	PART #	DESCRIPTION
1013	P40001013	TAILSTOCK BASE
1014	P40001014	SPECIAL SET SCREW M8-1.25 X 25
1015	P40001015	HANDLE
1016	P40001016	SPECIAL SCREW
1017	P40001017	KEY 3 X 13
1018	PSS20M	SET SCREW M8-1.25 X 8
1019	P40001019	RIVET
1020	P40001020	OIL PORT 6MM
1021	P40001021	CLAMPING PLATE
1022	PN03M	HEX NUT M8-1.25
1023	P40001023	TAILSTOCK CLAMP BOLT
1024	PW01M	FLAT WASHER 8MM



# Steady Rest

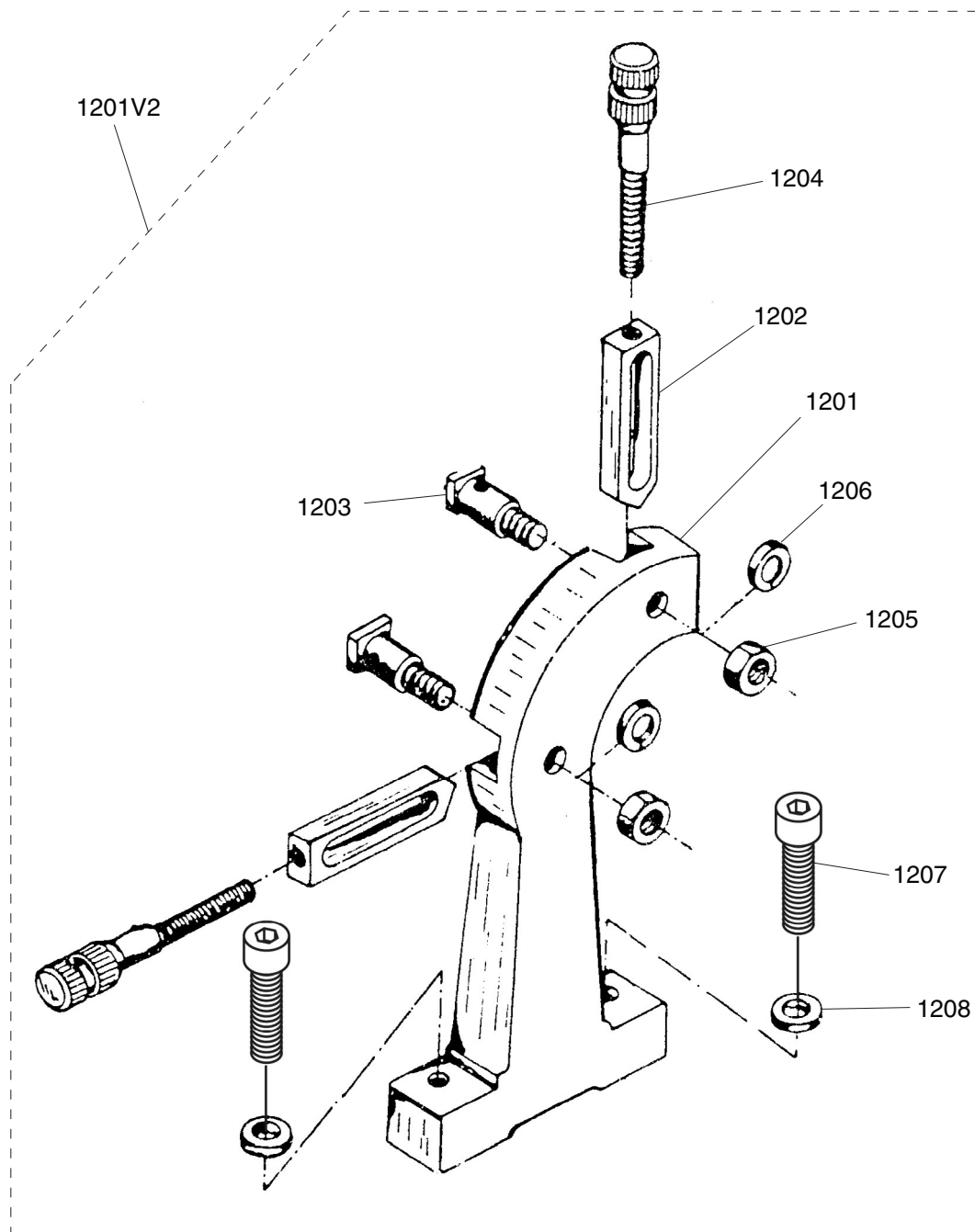


REF	PART #	DESCRIPTION
1101	P40001101	STEADY REST CASTING
1101A	P40001101A	STEADY REST ASSEMBLY
1103	P40001103	SPECIAL SCREW
1104	PLW04M	LOCK WASHER 8MM
1105	PN03M	HEX NUT M8-1.25

REF	PART #	DESCRIPTION
1106	P40001106	ADJUSTING SCREW
1107	P40001107	CLAMPING PLATE
1108	PB28M	HEX BOLT M8-1.25 X 60
1109	PW01M	FLAT WASHER 8MM
1110	P40001110	STEADY REST FINGER



# Follow Rest



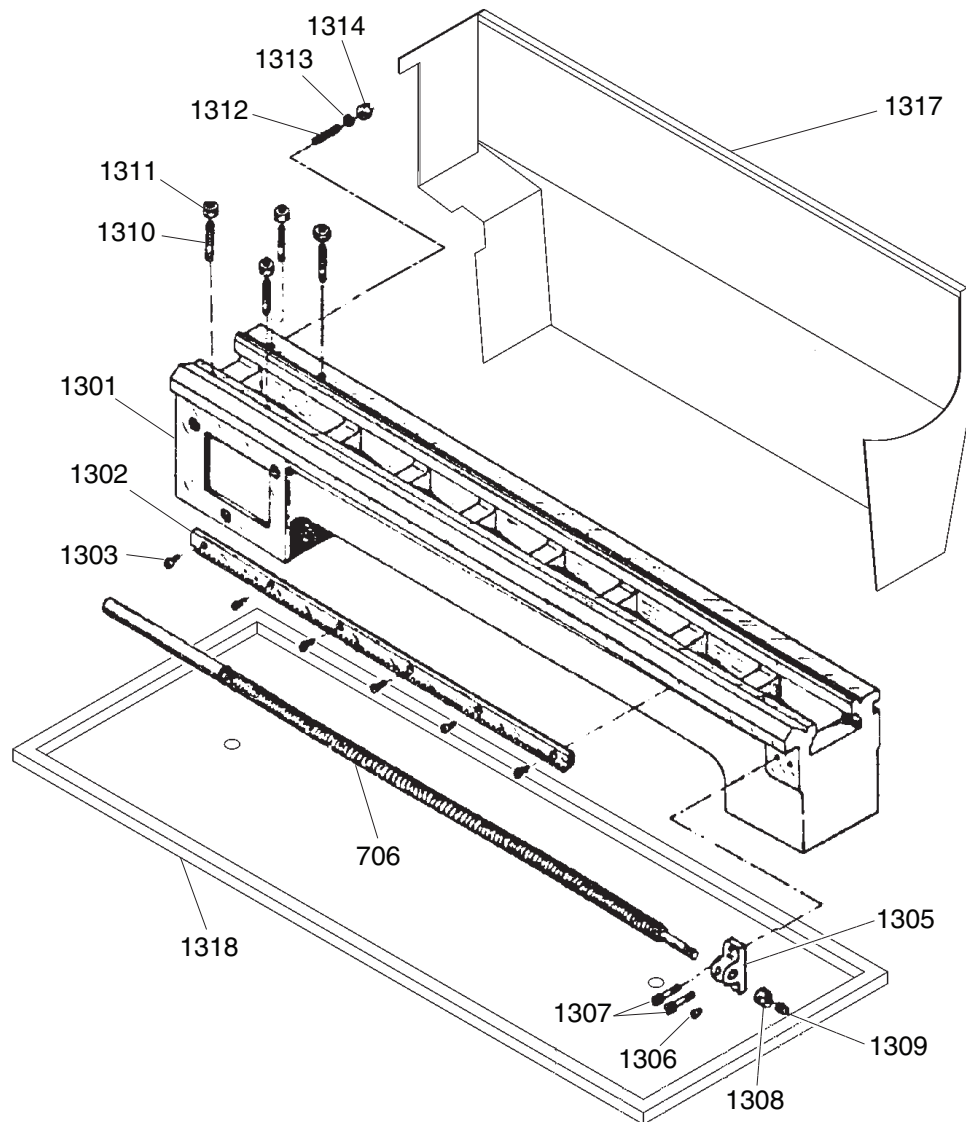
REF	PART #	DESCRIPTION
1201	P40001201	FOLLOW REST CASTING
1201V2	P40001201V2	FOLLOW REST ASSEMBLY V2.01.09
1202	P40001202	FOLLOW REST FINGER (2PC SET)
1203	P40001103	SPECIAL SCREW
1204	P40001204	ADJUSTING SCREW

REF	PART #	DESCRIPTION
1205	PN03M	HEX NUT M8-1.25
1206	PW01M	FLAT WASHER 8MM
1207	PSB07M	CAP SCREW M6-1 X 30
1208	PW03M	FLAT WASHER 6MM





# Bed

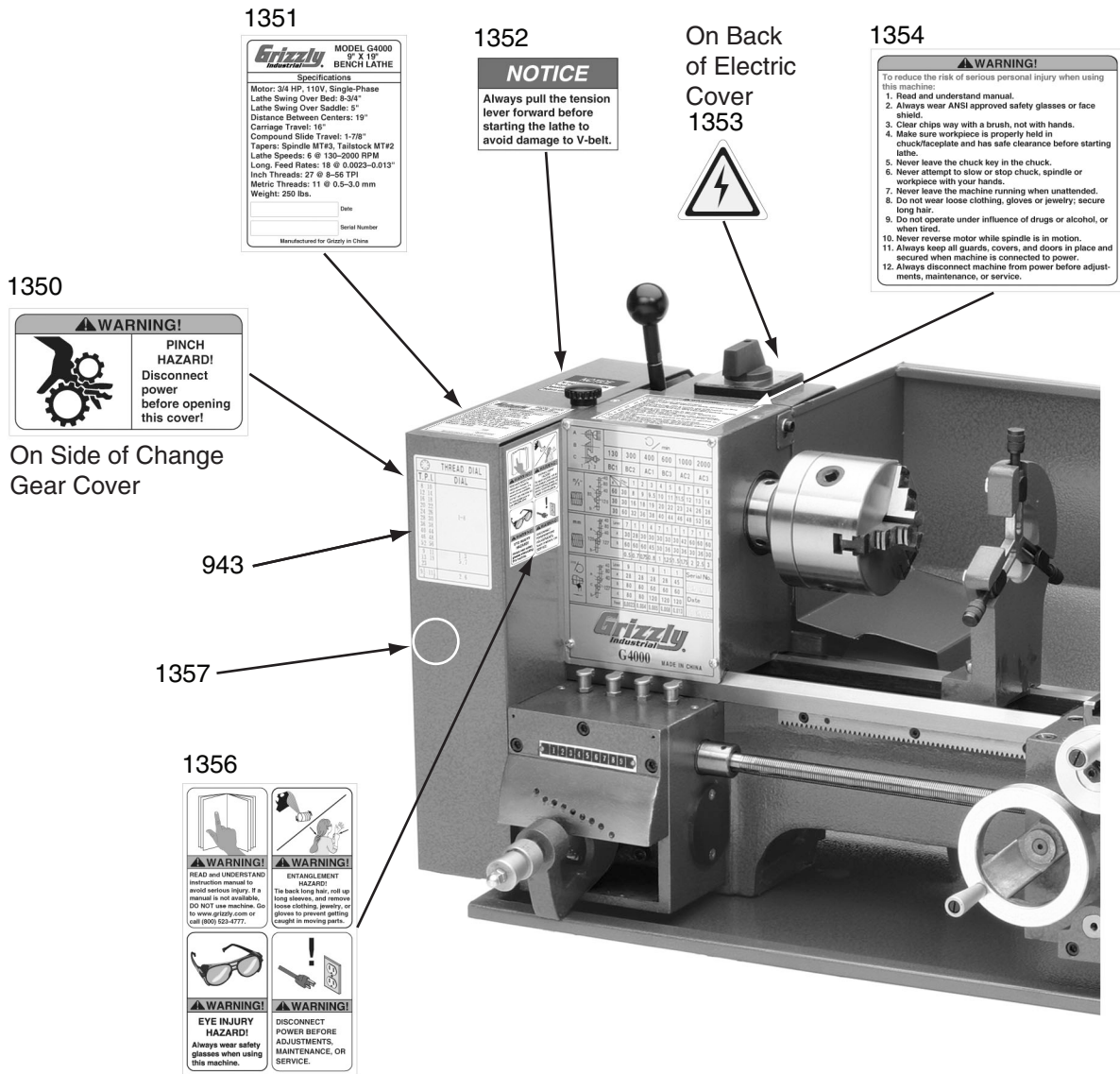


REF	PART #	DESCRIPTION
706	P4000706	LEADSCREW 9/16-16 x 25
1301	P40001301	BED
1302	P40001302	RACK
1303	PSB18M	CAP SCREW M4-.7 X 8
1305	P40001305	LEADSCREW BUSHING BLOCK
1306	P4000216	OIL PORT
1307	PSB02M	CAP SCREW M6-1 X 20
1308	P40001308	SPECIAL NUT

REF	PART #	DESCRIPTION
1309	PSS17M	SET SCREW M8-1.25 X 6
1310	P40001310	THREADED STUD M8-1.25 X 28
1311	PN03M	HEX NUT M8-1.25
1312	PSS12M	SET SCREW M6-1 X 25
1313	PW03M	FLAT WASHER 6MM
1314	PN01M	HEX NUT M6-1
1317	P40001317	CHIP SHIELD
1318	P40001318	CHIP PAN



# Label Placement



REF	PART #	DESCRIPTION
943	P4000943	THREAD DIAL CHART LABEL
1350	P40001350	PINCH HAZARD LABEL
1351	P40001351	MACHINE ID LABEL
1352	P40001352	TENSION LEVER NOTICE LABEL

REF	PART #	DESCRIPTION
1353	PLABEL-14A	ELECTRICITY LABEL
1354	P40001354	WARNINGS LABEL
1356	P40001356	GROUPED WARNINGS LABEL
1357	PPAINT-1	GRIZZLY GREEN TOUCH-UP PAINT

## WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine **MUST** maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, **REPLACE** that label before using the machine again. Contact Grizzly at (800) 523-4777 or [www.grizzly.com](http://www.grizzly.com) to order new labels.

